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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

For release January 20, 1948. MINERAL MARKET REPORTS
M.M.S. No. 1560.

METAL MINING IN UTAH, 1947 - PRELIMINARY ANNUAL FIGURES

Soaring on a 133-percent increase in copper output and one of 131 percent in gold, metal mining in Utah in 1947 rebounded with great vigor from the lows of 1946 and gave the State one of the best peacetime years in its mining history, according to the Salt Lake Office of the Bureau of Mines, United States Department of the Interior. Silver, lead, and zinc also made good records, silver gaining 80 percent in quantity, lead 57, and zinc 49 percent.

The value of each metal increased markedly over that in 1946, gold rising 131 percent, silver 103, copper 200, lead 110, and zinc 43 percent to reach a combined value of $156,324,815, or 160 percent above the value of the five metals in 1946 and 25 percent more than the previous peak of $124,562,540 reached in 1943. Of the State total value in 1947, copper contributed 71 percent, gold 10, zinc 6, lead 9, and silver 4 percent.

Based on reports by operators and receipts at smelters and mint offices for 10 months of the year and with November and December estimated from other sources of information, preliminary figures for 1947, with comparative figures for 1946, are given below.

Mine production of gold, silver, copper, lead, and zinc in Utah, 1946-47, in terms of recovered metals

Metals	1946		1947	
	Quantity	Value	Quantity	Value
Gold, fine ounces.......	178,533	$6,248,655	413,093	$14,458,255
Silver, fine ounces.....	4,118,453	3,327,710	7,450,000	6,742,250
Copper, pounds..........	228,568,000	37,028,016	532,190,000	111,227,710
Lead, pounds............	61,422,000	6,694,998	96,200,000	14,045,200
Zinc, pounds............	56,584,000	6,903,248	84,200,000	9,851,400
Total value...........	-----------	60,202,627	-----------	156,324,815

The value of the metals produced in 1947 has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: Gold, $35 per fine ounce ($35); silver $0.905 per fine ounce ($0.808); copper, $0.209 per pound ($0.162); lead, $0.146 per pound ($0.109); zinc, $0.117 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired on June 30, 1947.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

MINING

Although skilled miners were still needed at some Utah operations in 1947, the labor situation was much improved, and the over-all outstanding performance of the metal-mining industry in the State during the year was marred by only one significant incident--a strike on the Bingham and Garfield Railroad, which hauls ore from the mines in Bingham Canyon to mills and smelters in the Valley. The strike was called on October 22, and within a short time the Utah Copper mine and the Arthur and Magna mills of the Kennecott Copper Corp. had ceased operations. Production from the properties of the United States Smelting, Refining & Mining Co. was not greatly affected by the strike, as a fleet of trucks was pressed into service to move ore from the mines at Bingham to the company plants at Midvale. The strike was settled on November 5, and on the following day work was resumed at the Utah Copper mine.

The number of lode mines producing in Utah increased from 88 in 1946 to about 112 in 1947, a gain of 27 percent. However, the tonnage from many of these additional mines was relatively small, and a number made only one or two shipments during the year.

Improvements in many of the factors affecting metal production in Utah in 1947 resulted in a tremendous increase (129 percent) in output of ore--from 13,245,691 tons in 1946 to an estimated 30,370,000 tons in 1947, a figure that has been exceeded in Utah's history only in the period 1941-44. Most of this gain was made at the Utah Copper mine, but several other large producers, as well as a number of smaller ones, pushed their tonnages considerably above 1946 levels.

The extent to which mining in Utah was affected by the expiration of the Premium Price Plan on June 30 cannot be appraised fully at this time. The only large mine known to have shut down because of the expiration of the Plan was the property of the National Tunnel & Mines Co., an important producer of copper, lead, and zinc in the West Mountain (Bingham) district. Operations at certain other properties were curtailed or shifted to different ore, and undoubtedly some operators were deterred from doing further work on deposits that held little promise except under a premium price plan. On the other hand, it should be noted that several properties made their first shipments late in the summer or fall, and the operators seemingly intended to remain in production.

Output of ore in 1947 increased in each of the three leading districts. In the West Mountain (Bingham) district, production of ore and of each metal was considerably more than double that in 1946. Principal increases were from the Utah Copper mine of the Kennecott Copper Corp. and the United States & Lark group of the United States Smelting, Refining & Mining Co.. In the Park City region, ore production nearly doubled; output of gold and silver changed but little, and copper increased slightly; lead and zinc, however, made large gains. Each of the four leading operations in the district produced more ore than in 1946. In the Tintic district, production of ore increased appreciably; gold and zinc declined slightly; and silver, copper, and lead recorded good gains. The West Mountain (Bingham) district produced 89 percent of the State total value in 1947, the Park City region 5, the Tintic district nearly 3, and remaining districts less than 4 percent.

Further details on district and State production are shown in the table that follows.

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Mine production of gold, silver, copper, lead, and zinc in Utah and in the chief mining districts of Utah, 1946-47, in terms of recovered metals

District	Ore (short tons)	Gold (fine (ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)	Total value
West Mountain (Bingham) district							
1946..................	12,572,289	140,877	2,030,182	224,166,500	24,685,500	15,186,500	$47,429,473
1947..................	29,370,000	381,000	4,828,000	525,000,000	52,417,000	37,100,000	139,422,922
Park City region							
1946..................	336,474	16,956	1,009,422	892,500	16,745,000	17,752,500	5,544,668
1947..................	630,000	16,270	1,205,000	1,020,000	21,050,000	21,700,000	7,485,355
Tintic district							
1946..................	132,326	17,799	619,724	450,500	8,477,000	7,419,000	3,025,794
1947..................	158,000	13,325	958,000	898,000	10,900,000	7,000,000	3,931,447
Remaining districts							
1946..................	204,602	2,901	459,125	3,058,500	11,514,500	16,226,000	4,202,692
1947..................	212,000	2,498	459,000	5,272,000	11,833,000	18,400,000	5,485,091
Total, Utah							
1946..................	13,245,691	178,533	4,118,453	228,568,000	61,422,000	56,584,000	60,202,627
1947..................	30,370,000	413,093	7,450,000	532,190,000	96,200,000	84,200,000	156,324,815

MILLING AND SMELTING

The custom concentration mills (3,900 tons daily capacity) in the Salt Lake Valley were operated at a considerably higher rate in 1947 than in 1946, yet at much below total capacity. The Midvale 1,700-ton concentrator of the United States Smelting, Refining & Mining Co. operated all year and continued to treat largely zinc-lead ore, most of which came from company-owned properties in the West Mountain (Bingham) district and from the property of the New Park Mining Co. in the Park City region. The 1,500-ton concentrator of the International Smelting & Refining Co. at Tooele operated at such times as milling ore was available; the copper unit, which treated only ore from the property of the National Tunnel & Mines Co., was closed in August. The bulk of the feed at the zinc-lead unit was ore supplied by the Chief Consolidated Mining Co. in the Tintic district, the National Tunnel & Mines Co. in the West Mountain (Bingham) district, and the Park Utah Consolidated Mines Co. in the Park City region. The 700-ton concentrator of the Combined Metals Reduction Co. at Bauer operated throughout the year, mainly on zinc-lead ore from company-owned or -operated mines in Utah and Idaho.

The Magna and Arthur mills of the Kennecott Copper Corp. in 1947 treated considerably more than double the quantity of copper ore from the company mine in Bingham Canyon as was treated in 1946. However, work was halted during the Bingham and Garfield Railroad strike lasting from October 22 to November 5. The Silver King Coalition 800-ton concentrator at Park City operated all year and treated only zinc-lead-silver ore from the company mine. The Pacific Bridge Co. at Park City operated its 1,500 tons tailings plant at a high rate throughout the year and in addition treated some zinc-lead ore on a custom basis for an operator near Milford. Reuben Garbett continued to operate a small flotation mill at Park City and re-treated several thousand tons of current tailings from the Silver King Coalition mill. The Columbia mill of the Ohio Copper Co., in the West Mountain (Bingham) district treated a large tonnage of old copper tailings, and the Big Indian mill of the same company treated carbonate copper ore from the company mine in the La Sal district, San Juan County. The Big Indian mill was closed at the end of November. Near the close of the year a report stated that a 500-ton mill soon would be operating at the Horn Silver mine near Milford in Beaver County.

The Garfield copper smelter of the American Smelting & Refining Co. operated throughout the year but was forced to curtail its operations sharply during the Bingham and Garfield Railroad strike when copper concentrates from the Magna and Arthur mills were cut off. The Murray lead smelter of the American Smelting & Refining Co. and the Midvale lead smelter of the United States Smelting, Refining & Mining Co. operated all year and treated lead concentrates, crude lead ore, and siliceous ores. Material for the Murray plant was supplied mainly by mines in Utah and Idaho, and that for the Midvale plant chiefly from company-owned properties in Utah. The Tooele lead plant of the International Smelting & Refining Co. operated in conjunction with the company zinc slag-fuming plant and treated zinc-lead ores and old slag, lead ore and concentrates, and zinc ores from both company-owned and custom sources. The slag-fuming plant treated a total of about 158,600 tons of hot current slag, old cold slag, and crude ore in 1947 compared with 179,715 tons in 1946; the resulting zinc fume (19,600 tons), averaging 72.7 percent zinc, was shipped to the National Zinc Co. at Bartlesville, Okla., and the lead fume (2,610 tons), averaging 50.0 percent lead, was re-treated at the Tooele lead smelter.

GOLD

The spectacular pace set by gold in Utah in 1947 brought output of the metal well above 400,000 ounces to establish the highest figure in the State's history; the former high of 391,544 ounces was reached in 1942. Final figures may be required to determine whether Utah regained its former position as the largest gold-producing State, but it is certain that the State moved into third place and possibly into second or first place.

Straight gold mining showed little improvement in 1947, and base-metal ores continued to supply most of the State gold--copper ore, 88 percent; zinc-lead ore, 8 percent; and other base-metal ores, 1 percent, leaving only 3 percent contributed by gold and silver ores.

The West Mountain (Bingham) district in 1947 gained about 170 percent in gold output over that in 1946 and furnished 92 percent of the State total. The Park City region held close to the 1946 level, and the Tintic district recorded a decline.

The Utah Copper mine was the outstanding producer of gold in Utah in 1947, followed in order by the United States & Lark group (zinc-lead ore and gold-silver ore) at Bingham; New Park property (zinc-lead ore and gold ore) in the Park City region; Tintic Bullion mine (gold ore), Chief Consolidated property (zinc-lead ore, lead ore, and silver ore), and Eureka Lily mine (gold-silver ore) all in the Tintic district; National Tunnel & Mines Co. (copper ore and zinc-lead ore) in the West Mountain (Bingham) district; Calumet mine (zinc-lead ore) in the Rush Valley district; and the Eagle and Blue Bell mine (gold-silver ore) in the Tintic district. These 9 properties produced over 98 percent of the State gold in 1947.

SILVER

The gain of about three and a third million ounces over the 1946 output of 4,118,453 ounces brought Utah silver production in 1947 to the highest figure since 1944. Almost without exception, every important producer increased its output of silver, and production in 1947 was more than double that in 1946 at the Utah Copper mine, United States & Lark group, Pacific Bridge Co. operations, and the Butterfield property. Increases were noted in each of the three leading silver-producing districts but were particularly marked in the West Mountain (Bingham) district.

The important silver producers in Utah in 1947 in order were the Utah Copper mine, United States & Lark group, Chief Consolidated Mining Co., Park Utah Consolidated Mines Co., New Park Mining Co., Silver King Coalition Mines Co., Calumet mine, Pacific Bridge Co., Tintic Standard Mining Co., and the Butterfield property. From these 10 properties came 91 percent of the State silver in 1947.

Zinc-lead ore, zinc ore, and lead ore together supplied 52 percent of the total silver in Utah in 1947, copper ore 40 percent, and siliceous ores 8 percent.

COPPER

The yield of copper in Utah in 1947 virtually equaled that in 1941, the first year influenced by World War II; it has not been matched in any previous peacetime year in State history; and it has been surpassed only in the years 1942-44. Remarkable as this record is, it would have been even more so, but for the labor strike on the Bingham and Garfield Railroad, which lasted from October 22 to November 5 and is estimated to have caused a loss of some 26,000,000 pounds of copper from the Utah Copper mine. As the largest copper mine in the United States, the Utah Copper mine produced all but a relatively small part of Utah's copper in 1947 and contributed more than 30 percent of the Nation's mine output of the metal. Other mines in Utah that yielded over a million pounds of recoverable copper in 1947 were the United States & Lark group, the National Tunnel & Mines property (closed in August), and the Columbia group of the Ohio Copper Co., all in the West Mountain (Bingham) district. The Big Indian mine in San Juan County, which was in the million-pound class in 1946, was closed at the end of November 1947. Copper ore and old tailings treated in Utah in 1947 totaled about 29,100,000 tons, compared with 12,471,208 tons in 1946.

LEAD

Lead mining in Utah in 1947 made a very favorable showing and had the best year since 1944. Production of the metal at the United States & Lark group was more than double that in 1946, and six or seven other large producers made marked increases over their 1946 outputs. The 10 leading lead producers in order were the United States & Lark group, Chief Consolidated Mining Co., Silver King Coalition Mines Co., New Park Mining Co., Park Utah Consolidated Mines Co., Calumet mine, Butterfield group, Pacific Bridge Co., International smelter slag dump, and the Horn Silver mine. These properties contributed 91 percent of the State lead in 1947.

ZINC

Zinc output in Utah in 1947 rose to the highest figure since 1943. The West Mountain (Bingham) district produced almost two and a half times as much in 1947 as in 1946; yield was about 22 percent higher in the Park City region; the Tintic district, however, recorded a small decrease. Zinc production gained over 20,000,000 pounds at the United States & Lark group and over 4,000,000 pounds at the Pacific Bridge Co. operations at Park City. Park Utah Consolidated Mines Co., the Calumet mine, and the Silver King Coalition Mines Co. also reported increases, but the New Park Mining Co., the Tooele slag-fuming plant, and the Chief Consolidated Mining Co. failed to maintain zinc yield at their 1946 levels.

The leading producers of zinc in 1947 in order were the United States & Lark group, New Park Mining Co., Tooele slag-fuming plant (yield from old slag only credited to the plant as a producer), Chief Consolidated Mining Co., Pacific Bridge Co., Park Utah Consolidated Mines Co., Calumet mine, and Silver King Coalition Mines Co. These 8 producers supplied 88 percent of the State zinc in 1947.

Mine production of gold, silver, copper, lead, and zinc in Utah in 1947, by months, in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January............	31,675	592,300	44,970,000	7,360,000	6,840,000
February...........	31,125	610,200	43,600,000	7,480,000	6,730,000
March..............	33,970	631,950	48,500,000	8,040,000	7,470,000
April..............	36,530	660,265	46,940,000	8,800,000	8,340,000
May................	39,370	728,450	50,180,000	9,900,000	8,500,000
June...............	36,620	660,000	47,350,000	8,920,000	8,400,000
July...............	37,474	593,165	46,970,000	6,480,000	6,020,000
August.............	39,825	656,000	47,160,000	7,960,000	6,740,000
September..........	37,954	656,635	46,290,000	8,090,000	6,120,000
October............	25,400	521,435	32,920,000	7,480,000	6,370,000
November...........	28,150	522,600	32,310,000	7,600,000	6,340,000
December...........	35,000	617,000	45,000,000	8,090,000	6,330,000
Total: 1947.....	413,093	7,450,000	532,190,000	96,200,000	84,200,000
1946.....	178,533	4,118,453	228,568,000	61,422,000	56,584,000

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MINERAL MARKET REPORTS
M. M. S. NO. 1561.

IRON ORE IN 1947 - PRELIMINARY

Iron ore production in the United States in 1947 increased 32 percent over 1946 and was the third largest year in history, according to the Bureau of Mines, United States Department of the Interior. Output from domestic mines and mills in 1947 is estimated at 93,248,000 gross tons compared with the actual 70,843,113 tons produced during the previous year. In spite of this large increase over 1946 the deliveries of ore to consuming plants were barely sufficient to meet the requirements for the year and consequently it was impossible for consumers to improve their stock position, and the heavy rate of consumption existing at the end of the year will reduce consumers' stocks to a dangerously low level by the opening of the 1948 shipping season. Thus, it is to be expected that 1948 will be even a greater iron ore producing year than 1947.

Shipments of iron ore in 1947 increased 33 percent over 1946 and amounted to 93,363,000 gross tons. The estimated value of iron ore shipments in 1947 was $329,800,000 compared with $215,006,427 for the previous year. Thus, the average value per gross ton in 1947 and 1946 was $3.53 and $3.07 respectively. This increase in price was largely the result of a fifty cent per ton increase in the price of Lake Superior ore at Lower Lake ports, which was announced January 27, but which was retroactive to January 1, 1947.

Production and shipments of ore containing (natural) 5 to 35 percent manganese, not included in the iron ore statistics, amounted to 1,081,000 gross tons and 1,085,000 gross tons respectively during 1947. Minnesota, in the Lake Superior district, produced and shipped nearly 88 percent of this material during the year. New Mexico supplied 12 percent and less than 0.5 originated in Montana.

Stocks of iron ore at mines on December 31, 1947 were estimated at 5,317,000 gross tons compared with 5,339,147 tons reported at the end of 1946. Sixty-five percent of stocks at the end of 1947 were at mines in the Lake Superior district compared with 71 percent at the end of 1946. In addition to these stocks 248,000 tons of by-product ore were in stockpiles at producers' plants at the close of 1947--a decrease of 30 percent from 1946. There were at least 16 States in which iron ore was mined in 1947, and 4 others (Colorado, Delaware, Illinois and Tennessee) that produced and shipped by-product ore obtained from treating pyrites. In this report the States, excepting those producing only by-product ore, have been subdivided into four main groups; namely, the Lake Superior district, the Southeastern States, Northeastern States and Western States.

Prepared by Norwood B. Melcher under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Estimates of iron ore produced and shipped in the United States in 1947 and actual output in 1946

District and State	Ore produced		Ore shipped			
	1946	1947	1946		1947	
	Gross tons	Gross tons	Gross tons	Value	Gross tons	Value
Lake Superior:						
Michigan----------	8,688,604	12,788,000	8,477,425	$28,297,890	12,933,000	$268,000,000
Minnesota---------	49,290,807	62,438,000	49,055,340	142,049,316	62,590,000	
Wisconsin---------	1,062,743	1,473,000	1,097,471	(1)	1,497,000	
	59,042,154	76,699,000	58,630,236	(1)	77,020,000	268,000,000
Southeastern States:						
Alabama-----------	5,955,198	7,480,000	5,993,800	17,458,295	7,450,000	23,200,000
Georgia-----------	291,898	336,000	291,621	(1)	336,000	
Virginia----------						
	6,247,096	7,816,000	6,285,421	(1)	7,786,000	23,200,000
Northeastern States:						
New Jersey--------	417,529	458,000	419,274	3,052,831	458,000	28,600,000
New York----------	2,178,820	3,414,000	1,810,961	(1)	3,313,000	
Pennsylvania------						
	2,596,349	3,872,000	2,230,235	(1)	3,771,000	28,600,000
Western States:						
Utah--------------	1,317,176	2,741,000	1,321,334	1,372,109	2,738,000	7,000,000
California--------	333,183	485,000	226,062	2,546,646	311,000	
Wyoming-----------	619,317	628,000	619,317		628,000	
Other-------------	180,935	446,000	181,447		446,000	
	2,450,611	4,300,000	2,348,160	3,918,755	4,123,000	7,000,000
Byproduct ore 2/	506,903	561,000	596,358	2,787,305	663,000	3,000,000
Grand total-----	70,843,113	93,248,000	70,090,410	215,006,427	93,363,000	329,800,000

1/ Included in Grand total.

2/ Obtained from pyrites treated in, but not necessarily mined in Delaware, Michigan, Pennsylvania, Tennessee and Virginia.

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MINERAL MARKET REPORTS
MMS. NO. 1562

METAL MINING IN WYOMING, 1947 - PRELIMINARY ANNUAL FIGURES

In 1947 Wyoming metal mines yielded (in terms of recoverable metals) 1,556 fine ounces of gold, 100 fine ounces of silver, and no copper, lead, or zinc, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. Production in 1946 was 105 fine ounces of gold, 26 ounces of silver, and 2,000 pounds of copper. The increase in the production of gold and silver in Wyoming in 1947 was due chiefly to the operation in Fremont County by the Mica Mountain Mines, Inc., of its Carissa mine and new 75-ton amalgamation-cyanidation mill. These preliminary figures are based on 11 months' actual mine production with December production calculated from reports by mine operators, refineries (including the Denver Mint and Seattle Assay Office), and smelters of anticipated shipments and receipts.

At average prices used by the Bureau of Mines, as shown below, the calculated gross value of the output of these metals in 1947 was: Gold $54,460 and silver $91, a total of $54,551. In 1946 the gross value was: Gold $3,675, silver $21, and copper $324, a total of $4,020.

The price of gold in 1947 remained fixed by the United States Government at $35 a fine ounce and the price of domestic-mined silver was $0.905 a fine ounce.

Fremont County.--All production of gold and silver marketed from Wyoming in 1947 came from 3 mines operated in this county. In 1946 the Mica Mountain Mines, Inc., reopened the Carissa mine and began construction of a 75-ton amalgamation-cyanidation mill about ½ mile east of South Pass City; the mill was completed in March 1947. About 6,000 tons of ore had been treated when the company decided to suspend milling operations on October 1 because of failure to complete a new highway for winter use and because of a short labor supply. The company is continuing development work in the mine; plans include the sinking of the No. 2 shaft an additional 200 feet. Chas. F. Brown made small shipments of bullion and high-grade ore from the Duncan mine to the Denver Mint and the United States Smelting, Refining & Mining Co. smelter at Midvale, Utah. Peter Carter made a small shipment of bullion from the Yellow Hawk placer to the Seattle Assay Office.

Prepared by S. A. Gustavson, Denver Office, Metal Economics Branch, Economics and Statistics Division.

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Mine production of gold and silver in Wyoming, 1947, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)
January	------	------	------
February	40	3	------
March	96	4	------
April	81	4	------
May	82	4	------
June	212	14	------
July	296	26	------
August	321	17	------
September	428	28	------
October-December	------	------	------
Total: 1947	1,556	100	------
1946	105	26	2,000

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MINERAL MARKET REPORTS
NMS. NO. 1563

METAL MINING IN THE EASTERN STATES IN 1947--PRELIMINARY ANNUAL FIGURES

Mine production of zinc in the Eastern States in 1947 returned to a more nearly normal annual rate after the slump in 1946 caused by labor strikes, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. The output of recoverable zinc was approximately 158,600 tons compared with 138,488 tons in 1946 and an annual average of 159,986 tons during the 20-year period ended with 1945. Changes in 1947 from 1946 in zinc production by States were increases of 27 percent in Tennessee, 18 percent in New Jersey, 5 percent in New York, and nearly 1 percent in Virginia. The output of lead, nearly all recovered from zinc-lead ore, totaled 5,040 tons--a 10-percent decrease from 1946. Lead production in Virginia, the principal producer, decreased 20 percent but this decrease was partly offset by a 40-percent increase in New York. The Tennessee output of lead was small in both years. Copper production as a whole decreased 2 percent from 1946; the output in Tennessee was slightly less than in 1946, in Pennsylvania it was moderately higher, and in Vermont considerably lower. The production of gold and silver continued to be small and comprised mainly that recovered incidentally in the mining of other metals.

Preliminary figures for 1947, based on 11 months' actual production with December estimated, show an output (in terms of recoverable metals) of 1,645 fine ounces of gold, 53,000 fine ounces of silver, 12,600 short tons of copper, 5,040 short tons of lead, and 158,600 short tons of zinc. In 1946 the output was 1,432 ounces of gold, 76,964 ounces of silver, 12,850 short tons of copper, 5,579 tons of lead, and 138,488 tons of zinc, indicating increases of 213 ounces of gold and 20,112 tons of zinc, and decreases of 23,964 ounces of silver, 250 tons of copper, and 539 tons of lead.

The prices used herein for calculating the value of the production in 1947 are the average Government prices of $35.00 per fine ounce of gold and $0.905 per fine ounce of silver; and average weighted yearly prices (including an estimate for Government premiums) of $0.209 per pound of copper, $0.146 per pound of lead, and $0.117 per pound of zinc. In 1946 the price used for gold was $35.00, silver $0.808, copper $0.162, lead $0.109, and zinc $0.122.

Prepared by A. J. Martin, Denver Office, Metal Economics Branch
Economics and Statistics Division.

The value of the New Jersey zinc output, which is the value of zinc recoverable as metal and oxide after transportation, smelting, and manufacturing charges are added, is not yet available for 1947; in 1946 it was $11,701,346. The value of the zinc outputs in New York, Tennessee, and Virginia totaled $19,269,900 in 1947 compared with $18,064,296 in 1946. The value of the Eastern States output of gold in 1947 and 1946, respectively, was $57,575 and $50,120, silver $47,965 and $62,187, copper $5,266,800 and $4,163,400, and lead $1,471,680 and $1,216,222--a total for the 4 metals of $6,844,020 in 1947 and $5,491,929 in 1946.

Gold

Preliminary figures indicate that only 25 fine ounces of gold were recovered from straight gold or gold-silver mines in the Eastern States in 1947. Most of the gold was recovered from gold ore produced in development at the Calhoun mine in Lumpkin County, Ga. Gold recovered as a by-product of the mining of other metals comprised 1,520 ounces from iron (magnetite-pyrite-chalcopyrite) ore from Pennsylvania, and 100 ounces from copper ore from Vermont.

Silver

The silver output of the Eastern States in 1947 comprised 21,798 ounces recovered from zinc-lead ore from New York, 21,000 ounces from copper ore from Vermont, and 10,200 ounces from magnetite-pyrite-chalcopyrite ore from Pennsylvania, and 2 ounces from gold ore from Georgia.

Copper

In 1947 the Tennessee Copper Co. continued to be the principal producer of copper in the Eastern States. The company operated 4 mines, 2 flotation mills (combined capacity 3,000 tons), a smelter, a copper sulphate plant, and 2 sulfuric acid plants in the Ducktown-Copperhill district of Tennessee. The ore contains heavy sulfides of iron, copper, and zinc. Some of the ore was smelted direct in a blast furnace, but most of it was concentrated. The copper concentrates were smelted in a reverberatory furnace. The iron concentrates were used in making sulfuric acid and also yielded iron sinter, which was sold to iron and steel plants. The zinc concentrates were sold to zinc smelters. Preliminary figures indicate that the output of copper in 1947 was slightly less than in 1946.

In Pennsylvania the Bethlehem Steel Co. recovers copper as a byproduct from iron (magnetite-pyrite-chalcopyrite) ore from the Cornwall mine in Lancaster County.

The Vermont output of copper in 1947, as in other recent years, came from the Elizabeth mine of the Vermont Copper Co. in Orange County. The mine is equipped with a 500-ton flotation mill. The production in 1947 was less than in 1946.

In Virginia the Toncrae Mining Co. which constructed a plant to heap-roast and leach ore and precipitate copper at the Toncrae mine, Floyd County, shipped a small tonnage of cement copper in 1947.

Lead and Zinc

Zinc and zinc-lead ores milled in the Eastern States in 1947 totaled about 2,532,000 tons compared with 2,096,308 tons in 1946. The figures for both years include a small tonnage of lead carbonate ore.

New Jersey.--In 1947 New Jersey continued to be the leading zinc-producing State in the Eastern States. The State output of recoverable zinc as metal or in oxide was approximately 76,250 tons in 1947 compared with 64,454 tons in 1946. The output in 1946 was unusually low because of a labor strike. The producing mines in both years were the Mine Hill at Franklin and the Sterling Hill at Ogdensburg, Sussex County.

New York.--Zinc production in New York increased from 32,515 tons (recoverable metal) in 1946 to 34,165 tons in 1947 and lead from 1,073 to 1,500 tons. The mines are in St. Lawrence County east and southeast of Gouverneur. The Balmat and Edwards mines of the St. Joseph Lead Co. continued to be the principal producers. The Balmat ore contains zinc, iron, and lead sulfides, with some silver associated with the lead; the ore is treated in the Balmat 1,200-ton flotation mill. The Edwards mine yields straight zinc ore and is equipped with a 600-ton flotation mill. The Hyatt mine and 200-ton flotation mill of the Universal Exploration Co. operated steadily. Formerly only zinc concentrates were recovered from the ore, but in 1947 lead concentrates were also recovered.

Tennessee.--The principal zinc mines in Tennessee operated steadily throughout 1947, and the output of recoverable zinc increased to 31,185 tons compared with 24,614 tons in 1946. The lower output in 1946 was due largely to a labor strike at the mines of the American Zinc Co. in Knox and Jefferson Counties. The mines of this company that were operated in 1947 were the Grasselli, Jarnagin, Mascot No. 2, Mascot Graves, and Mossy Creek. The ore produced was treated in the 4,000-ton mill at the Mascot No. 2 mine. The output of concentrate from the mill was about 50 percent larger than in 1946.

The Davis-Bible mine and 800-ton flotation mill of the Universal Exploration Co. at Jefferson City operated throughout 1947. The concentrates produced averaged 64.47 percent zinc. The Tennessee Zinc Co. operated the Embreeville group in Washington and Unicoi Counties during the first part of the year, shipping zinc carbonate ore and a small tonnage of lead carbonate. The Hoover (Gaither) mine in Cannon County east of Murfreesboro shipped about a car of 58-percent zinc sulfide concentrates monthly from January through September. In Polk County the Tennessee Copper Co. recovered zinc concentrates from copper-iron-zinc sulfide ore.

Virginia.--The output of recoverable zinc in Virginia was about 17,000 tons and lead 3,525 tons in 1947 compared with 16,905 and 4,381 tons, respectively, in 1946. The Austinville mine in Wythe County, which has been in continuous operation since 1924, operated at approximately the same average monthly rate as in 1946; the ore is treated in the 2,000-ton flotation mill at the mine.

Mine production of gold, silver, copper, lead, and zinc in the Eastern States, 1946-47, in terms of recovered metals

State	Gold		Silver		Copper		Lead		Zinc		Total value
	Fine ounces	Value	Fine ounces	Value	Short tons	Value	Short tons	Value	Short tons	Value	
Georgia----	25	$875	2	$2	---	---	---	---	---	---	$877
New Jersey-	---	---	---	---	---	---	---	---	76,250	(a)	(a)
New York---	---	---	21,798	19,727	---	---	1,500	$438,000	34,165	$7,994,610	8,452,337
Pennsylv.--	1,520	53,200	10,200	9,231	(b)	(b)	---	---	---	---	c/ 62,431
Tennessee--	---	---	---	---	b/ 12,595	$5,264,710	15	4,380	31,185	7,297,290	d/12,566,380
Vermont----	100	3,500	21,000	19,005	(b)	(b)	---	---	---	---	c/ 22,505
Virginia---	---	---	---	---	5	2,090	3,525	1,029,300	17,000	3,978,000	5,009,390
Total: 1947	1,645	57,575	53,000	47,965	12,600	5,266,800	5,040	1,471,680	158,600	e/ 19,269,900	e/26,113,920
1946	f/1,432	50,120	76,964	62,187	12,850	4,163,400	5,579	1,216,222	138,488	g/ 29,765,642	g/35,257,571

a/ Figures for value of New Jersey zinc not yet available.
b/ Pennsylvania and Vermont included under Tennessee; Bureau of Mines not at liberty to publish separate figures for Pennsylvania and Tennessee.
c/ Excludes value of copper, which is included under Tennessee.
d/ Includes also value of copper from Pennsylvania and Vermont.
e/ Excludes value of zinc from New Jersey, figures for which are not yet available.
f/ Includes 1 ounce of gold valued at $35 from Alabama.
g/ Includes value of zinc from New Jersey ($11,701,346), which represents estimated smelting value of recoverable zinc content of ore after freight, haulage, smelting, and manufacturing charges are added.

Mine production of gold, silver, copper, lead, and zinc in the Eastern States, 1947, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (tons)	Lead (tons)	Zinc (tons)
January-------	136	4,420	1,124	336	14,000
February------	113	3,249	937	384	12,509
March---------	110	4,424	1,106	435	12,973
April---------	122	3,852	1,121	469	13,537
May-----------	105	6,092	1,085	438	13,325
June----------	139	4,508	943	420	13,929
July----------	161	4,216	1,020	457	13,915
August--------	167	4,915	1,079	409	12,808
September-----	146	4,531	1,027	455	12,528
October-------	152	4,177	1,071	445	13,654
November------	142	4,200	1,045	394	12,699
December------	152	4,416	1,042	398	12,723
Total: 1947---	1,645	53,000	12,600	5,040	158,600
1946---	1,432	76,964	12,850	5,579	138,488

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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
J. A. KRUG, Secretary JAMES BOYD, Director

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MINERAL MARKET REPORT
MMS NO. 1564

METAL MINING IN OREGON, 1947 - PRELIMINARY ANNUAL FIGURES

Production of silver in Oregon in 1947 -- largely from one mine -- was five times the 1946 output, but the total was only 14 percent of the all-time record set in 1916, according to preliminary figures prepared by the San Francisco office of the Bureau of Mines, United States Department of the Interior. Gold production was moderately higher than in 1946, and copper and lead output -- though more than in 1946 -- remained low. No zinc production was reported. These figures, which are in terms of recoverable metal, show gold production as 18,780 fine ounces, silver 33,000 fine ounces, copper 16,000 pounds, and lead 22,000 pounds. Production in 1946 was 17,598 fine ounces of gold, 6,927 fine ounces of silver, 16,000 pounds of copper, and 4,000 pounds of lead. The value of the four metals in 1947 was $693,721 compared with $624,231 for the same four metals produced in 1946, an increase of 11 percent.

The average prices used by the Bureau of Mines in calculating the gross values of the outputs of the metals were: Gold, $35 per fine ounce in 1946 and 1947; silver, $0.808 per fine ounce in 1946 and $0.905 in 1947; copper, $0.162 per pound in 1946 and $0.209 in 1947; and lead $0.109 per pound in 1946 and $0.146 in 1947. The average prices for the base metals include bonus payments made under the Premium Price Plan for copper, lead, and zinc which expired June 30, 1947.

Gold output in 1947, though 7 percent greater than the production in 1946, was still far short of the production of 113,402 fine ounces valued at $3,969,070 in the record year 1940. The greater proportion of production came from placers, principally from two connected-bucket dredges and an increasing number of dragline dredges. The continually rising cost of mining was the main factor deterring an expansion in lode mine output which remained relatively low. The principal gold producer in 1947 was the Sumpter Valley Dredging Co. which operated a connected-bucket dredge in the Sumpter district, Baker County. Porter and Co. operated a connected-bucket dredge in the Granite district, Grant County and ranked second in output of gold in 1947.

Silver output in 1947 is estimated at 33,000 fine ounces valued at $29,865 compared with 6,927 fine ounces valued at $5,597 in 1946, and the all-time record of 231,342 fine ounces valued at $152,223 in 1916. The principal silver producer in 1947 was the Oregon King Mines, Ashwood district, Jefferson County; the metal was recovered from silver ore shipped for direct smelting.

Prepared by Alfred L. Ransome, San Francisco Office, Metal Economics Branch, Economics and Statistics Division.

Production of copper and lead continued to be small in 1947, and apparently the relatively minor and intermittent output from a few properties was not affected by the termination of the Premium Price Plan for copper, lead, and zinc on June 30, 1947. Copper production for 1947 was only 16,000 pounds valued at $3,344 compared with 14,000 pounds valued at $2,268 in 1946; the metal was recovered from ore shipped to a copper smelter from several properties including that of the Oregon King Mines. Lead production increased in 1947 to 22,000 pounds valued at $3,212 from 4,000 pounds in 1946 valued at $436; the output came from several properties though the major proportion was from the Oregon King Mines operation. There was no recorded production of zinc in 1947.

Mine production of gold, silver, copper and lead in Oregon, in 1947, by months, in terms of recovered metals

	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)
January	610	350	-	-
February	500	180	-	-
March	1,120	250	-	-
April	1,230	2,400	1	1
May	1,680	2,200	1	1
June	1,960	6,720	1	2
July	2,180	6,000	1	2
August	2,570	2,700	4	1
September	1,710	2,850	-	1
October	1,700	3,100	-	1
November	1,720	3,250	-	2
December	1,800	3,000	-	-
	18,780	33,000	8	11
Total, 1946	17,598	6,927	7	2

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

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J. A. KRUG, Secretary JAMES BOYD, Director

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MMS NO. 1565

METAL MINING IN ARIZONA, 1947 - PRELIMINARY ANNUAL FIGURES

With no labor strikes in the mining industry in Arizona in 1947 and the average prices of silver, copper, and lead higher than in 1946, the State made a record output of lead and zinc, the greatest output of copper since 1943, and the greatest output of gold and silver since 1944, according to the Salt Lake City office of the Bureau of Mines, United States Department of the Interior. However, the total output of each of the five metals was greater during the first 6 months of the year than during the last 6 months. The ending June 30, 1947, of the Premium Price Plan for overquota bonus payments of copper, lead, and zinc resulted in a slight decline during the last 6 months of the year of the total output of these metals, as several small producers of marginal zinc ore, zinc-lead ore, and zinc-copper ore suspended shipments of ore to custom milling plants. However, some of the small producers that remained active had to resort to selective mining of higher grade ore.

In 1947 the State output of gold increased to 93,000 fine ounces from 79,024 fine ounces in 1946 (18 percent); silver from 3,268,765 fine ounces to 4,300,000 (32 percent); copper from 578,446,000 pounds to 729,200,000 (26 percent); lead from 47,860,000 pounds to 55,000,000 (15 percent); and zinc from 87,330,000 pounds to 105,800,000 (21 percent). The state remained the largest producer of copper in the United States and again ranked first in the total value of the five metals. The preliminary figures for 1947 are based on actual mine production reported by operators and receipts at smelters and the United States mints covering 10 months, with November and December production calculated from other sources of information.

Arizona ores and gravels in 1947 yielded gold, silver, copper, lead, and zinc valued at $179,957,900, the greatest value since 1918, when it was $202,134,880, and a 57-percent gain over 1946. The value of the gold output was 2 percent of the total value; silver, 2 percent; copper, 85 percent; lead, 4 percent; and zinc, 7 percent.

All six copper smelters in Arizona -- International Smelting & Refining Co. at Miami, Magna Copper Co. at Superior, Phelps Dodge Corp. at Clarkdale, Douglas, and Morenci, and American Smelting & Refining Co. at Hayden -- operated continuously throughout the year, most of them at a higher rate than in 1946. Arizona has no lead or zinc smelters.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

At the average prices used by the Bureau of Mines, the gross calculated values of the output of these metals in Arizona in 1947, with comparative figures for 1946 in parentheses, were: Gold, $3,255,000 ($2,765,840); silver, $3,891,500 ($2,641,162); copper, $152,402,800 ($93,708,252); lead, $8,030,000 ($5,216,740); and zinc, $12,378,600 ($10,654,260) -- a total of $179,957,900 in 1947 compared with $114,986,254 in 1946.

The price of gold ($35 per ounce), fixed by the United States Government remained unchanged in 1946 and 1947. The average price of silver rose from $0.808 per ounce to $0.905 per ounce; the average weighted yearly price of copper increased from $0.162 a pound to $0.209; and lead from $0.109 a pound to $0.146; zinc declined from $0.122 a pound to $0.117. In calculating average weighted prices for copper, lead, and zinc in 1947 allowance is made for the first 6 months of the year for overquota bonus payments; the bonus payments ceased after June 30.

About 78 percent of the gold and 54 percent of the silver produced in Arizona in 1947 was recovered from copper ore mined at Bisbee, Ajo, Jerome, Superior, Morenci, and Miami. The rest of the gold came largely from zinc-lead ore from a mine in the Big Bug district. Most of the remaining silver came from zinc-lead ore from the Big Bug, Harshaw, Pima, Warren (Bisbee), and Old Hat districts, and silver ore from the Ash Peak district.

Production of gold from copper ore increased from 61,347 ounces in 1946 to about 72,800 ounces in 1947, and that from zinc-lead ore from 12,917 ounces to about 13,600 ounces. The output of gold from placers decreased from 398 ounces in 1946 to an estimated 320 ounces in 1947. The largest producers of gold in Arizona in 1947 were the New Cornelia, Copper Queen, Iron King, Magma, United Verde, and Morenci mines; these six properties produced 87 percent of the State total. The principal gold-producing districts in Arizona in 1947 were the Ajo (30,300 ounces), the Warren (Bisbee) (19,250 ounces), the Big Bug (9,750 ounces), the Pioneer (Superior) (9,250 ounces), the Verde (6,750 ounces), and the Copper Mountain (Morenci) (6,400 ounces).

The output of silver in Arizona in 1947 was 4,300,000 ounces, the largest output since 1944. Production of silver from copper ore increased from 1,764,558 ounces in 1946 to about 2,420,000 ounces in 1947, and that from zinc-lead ore from 1,205,685 ounces to about 1,525,000 ounces. About 74 percent of the State silver output in 1947 came from the Copper Queen, Morenci, United Verde, and New Cornelia mines of the Phelps Dodge Corp., and the Iron King and Magma mines. The output of silver from the Warren district, the principal silver-producing area in Arizona, increased from 721,135 ounces in 1946 to about 1,430,000 ounces in 1947. This marked gain resulted chiefly from a large increase in the output of copper ore from the Copper Queen mine at Bisbee. Other important silver-producing districts were the Copper Mountain (Morenci) with 425,000 ounces, the Big Bug with 380,000 ounces, the Verde with 362,000 ounces, the Ajo with 350,000 ounces, the Pioneer (Superior) with 325,000 ounces, the Harshaw with 200,000 ounces, the Globe (Inspiration-Miami) with 175,000 ounces, and the Pima with 150,000 ounces.

The output of recoverable copper in Arizona in 1947 (729,200,000 pounds) was the greatest since 1943 and an increase of 26 percent over 1946; nearly all of the principal producers of copper in the State reported substantial increases in copper output. The Morenci mine remained by far the largest producer of copper in Arizona; it was followed by the New Cornelia, Inspiration, Miami, Castle Dome, Kennecott (Ray mines), Copper Queen, Magma, United Verde, and Bagdad properties. These 10 mines contributed about 719,200,000 pounds, compared with the same 10 mines which produced 564,458,874 pounds in 1946, or 98 percent of the State total.

The Copper Mountain (Morenci) remained the chief copper-producing district in Arizona in 1947, and its output rose from 190,731,500 pounds in 1946 to about 297,000,000 pounds in 1947; the Globe (Inspiration-Miami) district was second, its output increasing from 177,111,500 pounds to 179,500,000; the Ajo district ranked third, increasing from 90,465,000 pounds to 97,000,000; the Mineral Creek (Ray) district ranked fourth, increasing from 32,709,000 pounds to 36,000,000; and the Warren (Bisbee) district ranked fifth, increasing from 9,210,000 pounds to 33,700,000. The output from the Pioneer (Superior) district increased from 24,488,000 pounds to 30,500,000, and that from the Eureka (Bagdad) district from 11,864,500 pounds to 12,850,000, but that from the Verde district decreased from 32,351,000 pounds to 28,700,000. Nearly all the crude copper ore and copper concentrates produced in Arizona are treated in smelters in Arizona.

Continuous operations of lead and zinc-lead mines in Arizona in 1947 resulted in an output of 55,000,000 pounds of recoverable lead, the largest in any year in the history of the State, and 15 percent greater than the record output of 1946. The 900-ton flotation mill at the Copper Queen branch of the Phelps Dodge Corp. at Bisbee treated more zinc-lead ore in 1947 than in 1946, and the property remained by far the largest producer of lead and zinc in Arizona. Other large producers of lead were the Mammoth-St. Anthony property at Tiger, the San Xavier (Eagle-Picher Mining & Smelting Co.) south of Tucson, the Iron King mine at Humboldt, and the Trench-Flux group near Patagonia. In 1947 these five properties produced 86 percent of the State lead output. About 93 percent of the lead output in 1947 was recovered from zinc-lead ore, and the rest largely from lead ore. Production of lead from zinc-lead ore increased from 43,255,402 pounds in 1946 to about 49,500,000 pounds in 1947, and that from lead ore from 2,807,124 pounds to about 3,000,000 pounds. Nearly all the crude lead ore and lead concentrates produced in Arizona are shipped to the lead smelter at El Paso, Texas.

Each year for the past eight Arizona has succeeded in making a record output of zinc, and in 1947 the output of 105,800,000 pounds exceeded the record output of 1946 by 18,470,000 pounds (21 percent). The Copper Queen mine at Bisbee, by far the largest producer of zinc in Arizona in 1946 and 1947, increased its output of zinc 34 percent over 1946. Other large producers of zinc were the Iron King, San Xavier, Mammoth-St. Anthony, Republic (Coronado Copper & Zinc Co.), and Trench-Flux properties. In 1947 these six properties produced 92 percent of the State zinc output. About 89 percent of the zinc output in 1947 was recovered from zinc-lead ore and nearly all the remainder from zinc-copper ore, zinc ore, and zinc-lead-copper ore Production of zinc from zinc-lead ore increased from 75,919,185 pounds in 1946 to about 93,800,000 pounds in 1947, that from zinc-copper ore was about the same as that in 1946 (7,345,275 pounds), that from zinc ore declined from 2,398,040 pounds in 1946 to about 2,200,000 pounds in 1947, and that from zinc-lead-copper ore from 1,665,000 pounds to about 1,500,000 pounds. Zinc concentrates produced at mills in

Arizona in 1947 were shipped to smelters at Amarillo, Dumas, and Corpus Christi, Tex., Bartlesville, Okla., Great Falls, Mont., East St. Louis, Ill., and Fort Smith, Ark.

The output of ores and old tailings in Arizona in 1947 was about 38,500,000 tons, an increase of 7,441,821 tons over 1946. Most of the gain was in copper ore from the Copper Mountain (Morenci), Warren (Bisbee), Ajo, Mineral Creek (Ray), Globe (Inspiration-Miami). Pioneer (Superior), and Eureka (Bagdad) districts; the total output of copper ore increased from 30,386,149 tons to about 37,700,000 tons, and that of zinc-lead ore from 515,047 tons to about 650,000 tons. There was also an increase in output of zinc-copper ore, but a decrease in zinc-lead-copper ore, silver ore, gold ore, zinc ore, and lead ore.

Mine production of gold, silver, copper, lead, and zinc in Arizona in 1947, by months, in terms of recovered metals

	Gold (ounces)	Silver (ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January......	7,300	359,000	61,400,000	4,660,000	9,200,000
February.....	6,845	359,000	58,900,000	4,200,000	8,840,000
March........	8,245	355,000	64,010,000	4,460,000	9,420,000
April........	8,100	390,000	60,450,000	4,820,000	9,580,000
May..........	8,325	375,000	62,770,000	4,600,000	8,860,000
June.........	8,310	369,000	59,450,000	4,960,000	9,600,000
July.........	7,670	355,000	63,940,000	4,600,000	8,900,000
August.......	7,100	363,000	59,640,000	4,440,000	8,150,000
September....	7,355	337,000	58,930,000	4,360,000	7,720,000
October......	7,800	355,000	61,940,000	4,760,000	8,740,000
November.....	8,300	340,000	57,770,000	4,540,000	8,370,000
December.....	7,650	343,000	60,000,000	4,600,000	8,420,000
Total........	93,000	4,300,000	729,200,000	55,000,000	105,800,000

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MINERAL INDUSTRY SURVEYS
UNITED STATES DEPARTMENT OF THE INTERIOR
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J. A. KRUG, Secretary JAMES BOYD, Director

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UNIVERSITY OF ILL

MINERAL MARKET REPORT
M. M. S. No. 1566

METAL MINING IN IDAHO, 1947 - PRELIMINARY ANNUAL FIGURES

Higher average prices for silver, copper, and lead and an improvement in the labor supply during the year 1947 in the metal-mining industry of Idaho resulted in marked increases in the production of gold, silver, copper, lead, and zinc over 1946, according to preliminary figures released by the Salt Lake City Office of the Bureau of Mines, United States Department of the Interior. The most important increases were in silver and lead which had declined seriously each year during the past several years. Lead production was again less than the zinc, but in 1947 it came close to overtaking the zinc output. However, the value of the lead output was 20 percent greater than the zinc output owing to the higher average price of lead. Silver production was the largest since 1943, and the gold production the largest since 1942. Production of each metal, except zinc, was greater during the last 6 months of the year than during the first 6 months.

The ending June 30, 1947, of the Premium Price Plan for overquota bonus payments of copper, lead, and zinc had virtually no affect on the total output of these metals in Idaho. However, a few of the shippers of marginal zinc-lead ore suspended operations and those that remained active had to resort to selective mining of higher grade ore.

In 1947 the State output of gold rose to 65,100 fine ounces from 42,975 fine ounces in 1946 (51 percent); silver, from 6,491,104 fine ounces to 9,940,000 fine ounces (53 percent); copper, from 2,076,000 pounds to 2,930,000 (41 percent); lead, from 119,974,000 pounds to 151,500,000 (26 percent); and zinc, from 143,014,000 pounds to 157,700,000 pounds (10 percent). In 1947 the State remained the largest producer of silver and zinc in the United States and the second largest producer of lead (exceeded only by Missouri).

The preliminary figures for 1947 are based on actual mine production reported by operators and on receipts at smelters and the United States mints covering 10 months with November and December production calculated from other sources of information.

At the average prices used by the Bureau of Mines, the gross calculated value of the output of these metals in Idaho in 1947, with comparative figures for 1946 in parentheses, was: Gold, $2,278,500 ($1,504,125); silver, $8,995,700 ($5,244,812); copper, $612,370 ($336,312); lead, $22,119,000 ($13,077,166); and zinc, $18,450,900 ($17,447,708)--a total of $52,456,470 in 1947, the largest since 1917 when it was $54,845,153, and a gain of 39 percent over 1946. In 1947 the value of the gold output was 5 percent of the total value; silver, 17 percent; copper, 1 percent; lead, 42 percent; and zinc, 35 percent.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

The price of gold ($35 per ounce), fixed by the United States Government, remained the same throughout 1947. The average price of silver rose from $0.808 per ounce to $0.905 per ounce; the average weighted yearly price of copper increased from $0.162 a pound to $0.209, and lead from $0.109 a pound to $0.146, but zinc declined from $0.122 a pound to $0.117. In calculating average weighted prices for copper, lead, and zinc in 1947 allowance is made for overquota bonus payments.

Gold mining in Idaho continued to improve in 1947 at both lode and placer properties, and the output of gold increased to 65,100 ounces or 22,125 ounces more than in 1946. This gain resulted mainly from the marked increase in output of gold-silver-antimony ore from the Yellow Pine mine at Stibnite in Valley County and to a greater production of gold from dredging operations in the Gibbonsville and Kirtley Creek districts in Lemhi County and the Ten Mile (Golden) and Elk City districts in Idaho County. About 64 percent of the gold produced in Idaho in 1947 was recovered from gold-silver-antimony ore from the Yellow Pine mine at Stibnite, gold ore from the Boise-Rochester-Monarch (Talache Mines, Inc.) property at Atlanta, zinc-lead ore from the Triumph property near Hailey, and zinc-lead ore from various mines in the Coeur d'Alene region. Most of the remainder of the gold was recovered from either bucket or dragline dredging in the Boise Basin, Gibbonsville, Yankee Fork, Kirtley Creek, Elk City, Ten Mile (Golden), and Hoodoo districts. The output of gold from lode mines was about 44,600 ounces in 1947 compared with 22,852 ounces in 1946, and that from placers 20,500 ounces compared with 20,123 ounces. The Baumhoff-Marshall Co. operated throughout the year its two bucket dredges near Centerville in Boise County, the Idaho-Canadian Dredging Co. operated only 6 months its 7½-cubic foot bucket dredge at Idaho City also in Boise County. In April the Idaho-Warren Dredging Co. (idle since October 1942) resumed operating its 4½-cubic foot bucket dredge at the Hughes Creek property near Gibbonsville in Lemhi County, the Smith Bros. & Courtis, Inc. operated its dragline and floating washing plant most of the year at the Hagel property also near Gibbonsville, and the Washington Iron Works operated nearly all year its dragline and dry-land washing plant at a property on Kirtley Creek near Salmon. The Snake River Mining Co. operated its 8-cubic foot bucket dredge most of the year at the Yankee Fork property near Sunbeam in Custer County, but the Pyramid Mining Co.'s 7½-cubic foot bucket dredge, a large producer of gold in 1946, at the Boise King Placers on the Middle Fork of the Boise River in Elmore County was idle throughout 1947. In April, Northwest Gold Fields (idle since October 1942) resumed operating its 4½-cubic foot bucket dredge at a property near Harvard in Latah County; it closed down again in July. The South Fork Placers, a new company, began in June operating a dragline and floating washing plant on the South Fork of the Clearwater River in Idaho County. A bucket-line dredge was placed in operation in August by H. & H. Mines at the Red Horse Creek Placers near Elk City in Idaho County, and the Tyee Mining Co. operated its dragline and floating washing plant most of the year on American River also near Elk City. The Bradley Mining Co. (Yellow Pine mine) was by far the largest producer of gold in Idaho in 1947; it was followed by the Talache Mines, Inc., Baumhoff-Marshall Co.; Snake River Mining Co., Triumph Mining Co., Idaho-Canadian Dredging Co., Idaho-Warren Dredging Co., Washington Iron Works, Smith Bros. & Courtis, Inc., and South Fork Placers.

After eight years of a steady decline in output of silver in Idaho in each year, except 1940, since 1937, the output in 1947 increased to 9,940,000 ounces, or 3,448,896 ounces more than in 1946. This marked gain resulted principally from an increase in production of silver ore from property operated by the Sunshine Mining Co. near Kellogg in the Coeur d'Alene region, from an increase in production of zinc-lead-silver ore from the Bunker Hill & Sullivan, Sherman, Sidney, Star, and Page mines, all in the Coeur d'Alene region, from gold-silver-antimony ore from the Yellow Pine mine at Stibnite in Valley County, and from silver-antimony ore from the Mineral Point mine at Osburn in the Coeur d'Alene region. However, a substantial decrease in output of silver was recorded in 1947 from the Osburn tailing dump also in the

Coeur d'Alene region. About 53 percent of the State output of silver in 1947 was recovered from silver ore, 40 percent from zinc-lead ore and old tailings, and the remainder largely from silver ore and lead ore. The Sunshine mine remained the largest producer of silver in the State, and its output in 1947 was double that in 1946; it was followed by the Polaris, Bunker Hill & Sullivan, Silver Dollar, Page, Triumph, Sherman, Yellow Pine, Osburn tailing dump, Star, Mineral Point, Morning, Sidney, Sweeny tailing dump, and Silver Syndicate mines; all except the Triumph and Yellow Pine properties are in the Coeur d'Alene region. The Coeur d'Alene region produced 90 percent of the State total silver in 1947; the remainder came largely from the Warm Springs, Yellow Pine, Bayhorse, Middle Boise (Atlanta), and Blue Wing districts.

The copper output of Idaho in 1947 was approximately 2,930,000 pounds, a 41-percent gain over 1946; most of the copper was recovered as a byproduct in the treatment of silver ore and zinc-lead ore and old tailings from mines in the Coeur d'Alen region. The principal producers of copper in 1947 were the Sunshine, Mineral Point, Triumph, Polaris, Silver Dollar, and Bunker Hill & Sullivan properties, all in the Coeur d'Alene region except the Triumph.

Although Idaho's output of recoverable lead increased from 119,974,000 pounds in 1946 to 151,500,000 pounds in 1947, it was still less than the zinc output. Nevertheless, it made a remarkable gain on the State total zinc output, caused mainly from some of the large producers of zinc-lead ore in the Coeur d'Alene region mining ore containing a higher lead content and from a greater output of lead-silver ore fr mines also in the Coeur d'Alene region. Marked increases in lead output in 1947 were recorded from the Bunker Hill & Sullivan, Sherman, Sidney, Star, Sunshine, and Page properties, all in the Coeur d'Alene region. However, a notable decline in lead output was reported by the operators of the Osburn tailing dump, also in the Coeur d'Alene region. The Bunker Hill & Sullivan mine remained the largest lead producer in Idaho in 1947, and its output increased about 49 percent over that in 1946. Other large producers of lead in order of output were the Star, Page, Morning Sherman, Sidney, Sweeny tailings, Osburn tailings, Dayrock, Frisco, Tamarack & Custer, Triumph, and Monitor properties; the first 9 properties--each with an output of more than 4,000,000 pounds of lead-produced 67 percent of the State total. About 95 percent of the State lead output came from properties in the Coeur d'Alene region; the remainder came largely from the Warm Springs, Alder Creek, and Bayhorse districts. Zinc-lead ore and old tailings supplied 91 percent of the total lead, and lead ore and silver ore most of the remainder.

The output of recoverable zinc in Idaho increased to 157,700,000 pounds in 1947 (10 percent greater than that in 1946), and the State remained the largest producer of zinc in the United States. Marked increases in zinc output from the Sidney, Star (Sullivan Mining Co.), Frisco, Highland-Surprise, and Page properties more than offset large decreases from the Osburn tailing dump, Bunker Hill smelter slag dump, and Tamarack & Custer mine. The Star mine near Burke in the Coeur d'Alene region was the largest producer of zinc in Idaho in 1947; it was followed by the Page, Bunker Hill smelter slag dump, Sidney, Morning, Frisco, Osburn tailings, Bunker Hill & Sullivan mine, Monitor, Triumph, Little Pittsburg, Tamarack & Custer, Spokane-Idaho, and Highland-Surprise properties. These 14 properties, all, except the Triumph, in the Coeur d'Alene region, produced 83 percent of the State total. About 95 percent of the State total zinc in 1947 came from the Coeur d'Alene region, and most of the remainder from the Warm Springs, Bayhorse, Alder Creek, and Deadwood Basin districts.

About 3,260,000 tons of ore and old tailings were treated in Idaho in 1947 compared with 2,882,187 tons in 1946. This gain resulted principally from a greater quantity of gold ore, zinc-lead ore, and silver ore being treated in 1947 than in 1946. Approximately 88 percent of the total in 1947 came from 49 mines and 9 tailing dumps in the Coeur d'Alene region; the remainder was mostly gold-silver-antimony ore from Valley County, zinc-lead ore from Blaine and Custer Counties, silver-tungsten ore from Lemhi County, and gold ore from Elmore County.

The production of gold from the Coeur d'Alene region increased from 1,758 ounces in 1946 to 2,050 ounces in 1947, silver from 5,655,672 ounces to 8,930,000, copper from 1,619,000 pounds to 2,320,000, lead from 113,096,000 pounds to 141,300,000, and zinc from 134,858,000 pounds to 150,600,000. Following the Coeur d'Alene region, the Warm Springs district near Ketchum Blaine County, remained the most important producing area in Idaho. The output of the district was virtually all zinc-lead ore (about 53,350 tons) from the property operated by the Triumph Mining Co.; nearly all the ore was shipped to Bauer, Utah, for reduction as the company's 300-ton concentration mill at Triumph, Idaho, was destroyed by fire January 18, 1947.

Idaho has one lead smelter and refinery--the Bunker Hill & Sullivan Mining & Concentrating Co. plants at Bradley. The annual rated capacity of the smelter is 225,000 tons of feed per year, but in 1947 the plant was operated below capacity on crude ore and concentrates chiefly from mines and mills in the Coeur d'Alene region. The company also operated its antimony, cadmium, and zinc slag-fuming plants at Bradley. Production of lead and zinc from the slag-fuming plant in 1947 was less tha that in 1946; in 1947 the plant yielded about 20,750 tons of deleaded zinc fume (22,579 tons in 1946), and 3,200 tons of lead fume (3,936 tons in 1946). The slag-fuming plant was closed down all of September for alterations. The Sullivan Mining Co. operated continuously its 100-ton electrolytic zinc plant (450-cell) near Bradley on zinc and zinc-lead concentrates produced mainly from concentration mills in the Coeur d'Alene region. The principal concentration mills in the Coeur d'Alene region that operated continuously in 1947 were the Bunker Hill & Sullivan (1,800-ton mill and 1,800-ton sink-float unit) at Kellogg; the Morning (1,250-ton) at Mullan; the Sunshine (1,200-ton) near Kellogg; the Star (1,000-ton) at Burke; The Hecla (900-ton) at Burke; the Mineral Point (600-ton) near Osburn; the Page (500-ton) near Kellogg; the Osburn tailing plant (500-ton mill and 2,500-ton sink-float unit) at Osburn; the Gold Hunter (500-ton) at Mullan; the Tamarack & Custer (400-ton) near Burke; the Hercules (350-ton) near Wallace; the Sherman (325-ton) near Burke; the Polaris (300-ton) near Osburn; and the Sidney (250-ton) on Pine Creek.

Mine production of gold, silver, copper, lead, and zinc in Idaho in 1947, by months in terms of recovered metals

	Gold (ounces)	Silver (ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January	2,910	726,500	190,000	12,000,000	13,400,000
February..........	2,650	685,000	210,000	11,170,000	11,700,000
March	4,170	793,700	244,000	11,700,000	12,600,000
April	5,740	967,700	274,000	12,400,000	13,200,000
May	6,070	756,000	236,000	12,000,000	14,750,000
June	6,825	750,000	236,000	13,250,000	15,370,000
July	7,160	763,000	260,000	12,300,000	12,890,000
August	6,560	825,700	250,000	13,000,000	12,800,000
September	5,960	780,000	230,000	12,640,000	11,800,000
October	6,400	1,090,400	290,000	13,740,000	12,730,000
November	5,600	920,000	260,000	13,800,000	13,160,000
December	5,055	882,000	250,000	13,500,000	13,300,000
Total	65,100	9,940,000	2,930,000	151,500,000	157,700,000

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UNITED STATES DEPARTMENT OF THE INTERIOR

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MINERAL MARKET REPORTS
MMS NO. 1567

METAL MINING IN NEW MEXICO, 1947 - PRELIMINARY ANNUAL FIGURES

The total value of gold, silver, copper, lead, and zinc produced from mines in New Mexico in 1947 increased 47 percent over 1946, according to the Denver office of the Bureau of Mines, United States Department of the Interior. The production of these five metals increased in all instances except gold. In general, there was a continued shortage of skilled underground labor and certain supplies; however, there were no strikes at any of the larger mines and the production trend for the major operators in the State was upward in 1947. The quantity of lead mined showed a notable increase after the ending of the Premium Price Plan on June 30 -- the Peru Mining Co., in particular, ceased operation in its mines which had relatively lead-free zinc ore bodies and concentrated its operations on ores in the Kearny mine, which are higher in lead content. The fact that there were virtually no mining operations in the Steeple Rock district of Grant County during 1947 and that there was a lower gold production from the properties of the United States Smelting, Refining & Mining Co. chiefly accounted for the decrease in the State's gold output.

Production in 1947 was 3,000 fine ounces of gold, 455,240 ounces of silver, 127,640,000 pounds of copper, 12,216,000 pounds of lead, and 86,484,000 pounds of zinc. These preliminary figures are based on 10 months' actual mine production with November and December production calculated from reports by mine operators, refineries (including the Denver Mint), and smelters of anticipated shipments and receipts. Production in 1946 was 4,009 fine ounces of gold, 338,000 fine ounces of silver, 100,382,000 pounds of copper, 9,798,000 pounds of lead, and 72,206,000 pounds of zinc.

The total gross value of gold, silver, copper, lead, and zinc produced in 1947, calculated at the average prices shown below, was $39,095,916, compared with $26,552,417 in 1946, and included gold valued at $105,000, silver $411,992, copper $26,676,760, lead $1,783,536, and zinc $10,118,628. Of the 1946 total value $140,315 was in gold, $273,104 in silver, $16,261,884 in copper, $1,067,982 in lead, and $8,809,132 in zinc. The price of gold, fixed by the United States Government, remained at $35 a fine ounce and the price of domestic-mined silver was $0.905 a fine ounce. The average weighted yearly price per pound, including bonus payments for over-quota production, of copper advanced from $0.162 in 1946 to $0.209 in 1947 and lead from $0.109 to $0.146, but zinc decreased from $0.122 in 1946 to $0.117 in 1947.

Prepared by S. A. Gustavson, Denver Office, Metal Economics Branch, Economics and Statistics Division.

Grant County. -- The six major companies mining in this county operated throughout 1947. Their operations accounted for the bulk of the production from the State.

The Chino Mines Division of the Kennecott Copper Corp. operated its open-pit mine at Santa Rita in the Central district and its flotation mill and reverberatory copper smelter at Hurley at or near capacity throughout 1947 and was the major producer of copper in New Mexico. The company also continued to expand operations at its Oswaldo zinc-lead properties; crude ore was shipped to the Empire Zinc Co. mill for beneficiation.

The United States Smelting, Refining & Mining Co. operated several mines in the Central district under the single name "Bayard mine" and was the most important producer of zinc and lead in the State.

The Peru Mining Co. operated its Pewabic, Copper Flat, and Kearny mines in the Central district during the first half of 1947; all operations were concentrated at the Kearny mine after cessation of the Premium Price Plan. The company also operated its 1,000-ton selective-flotation mill at Wemple near Deming (Luna County) and treated custom and company ores.

The Empire Zinc Co. operated its Hanover mine group and selective-flotation mill throughout 1947. Custom ore was treated, chiefly from the Oswaldo mine of the Kennecott Copper Corp. and the Lynchburg mine in the Magdalena district, Socorro County.

The American Smelting & Refining Co. operated its Ground Hog unit in the Central district and the leased Hanover milling unit (formerly Combination-Black Hawk mill) continuously during 1947. Custom ore was received from mines in Grant, Sierra, and Socorro Counties.

The Phelps Dodge Corp. Burro Mountain property in the Burro Mountain (Tyrone) district continued to recover copper by precipitation from mine waters pumped through the old workings.

Other producing mines in Grant County included the Boston Bicket, Houston-Thomas, International, Royal John, and Langston. Mineral Operations, Inc., constructed a flotation-concentration mill at the Hornet mine near Hachita; the company expected to be in production before the end of 1947.

Catron County. -- The Silver Creek Mining Co. operated its Bearup mine from January through April, when all operations ceased.

Dona Ana County. -- J. H. Brown made small shipments of lead ore from the Stevenson-Bennett group.

Hidalgo County. -- The Banner Mining Co. continued to operate its Bonney and Misers Chest group of copper mines and 500-ton flotation mill throughout 1947. The Atwood Copper Mines continued to operate the Atwood mine and shipped crude ore to smelters for treatment. These two properties accounted for much of the silver produced from the State during the year. Other mines making shipments from the county included the McGhee, Red Hill, Silver Dollar, and Volcano.

Luna County. -- Properties from which ores were shipped during the year included the Victorio, El Progreso, Leila F, and Montezuma.

Otero County. -- M. F. Drunzer shipped ore from the Warnock, Courtney, and Providence mines.

Santa Fe County. -- The Shamrock Gold Mining Co. operated its mine and mill for a short time and recovered a small quantity of gold.

Sierra County. -- Several shipments of lead ore were made from the county. Among mines producing were the Iron King, Dude mine dump, Bonanza, Lookout No. 1, Forest King, Tall Pine, Palomas Chief, Badger, Marion, and Night Hawk.

Socorro County. -- The American Smelting & Refining Co. operated its Magdalena unit and 200-ton selective-flotation mill throughout 1947. C. S. Elayer operated the Lynchburg mine; McDonald & Dobson shipped zinc-lead ore from its Nitt properties; J. D. Torres operated the Kelly mine; A. Tafoya operated the Juanita mine; Sadie Papa operated the Queen mine; and small shipments of lead ore were made from the Blue Stone, Esperanza, and Companion mines. The Portales Mining Co. produced and stockpiled ore from its lead property in the Oscura Mountains pending completion of a 100-ton concentration mill at San Antonio. The company expects to place the mill in operation in December 1947 or January 1948.

Mine production of gold, silver, copper, lead, and zinc in New Mexico, 1947, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January...........	210	32,960	9,228,000	764,000	7,202,000
February..........	230	33,425	9,464,000	748,000	6,834,000
March.............	220	24,625	9,622,000	716,000	7,038,000
April.............	220	30,750	10,942,000	798,000	7,104,000
May...............	240	35,575	10,804,000	988,000	7,424,000
June..............	245	38,540	10,910,000	920,000	7,060,000
July..............	300	37,800	10,800,000	1,000,000	6,096,000
August............	300	42,475	11,844,000	1,092,000	7,086,000
September.........	280	45,550	11,646,000	1,222,000	7,598,000
October...........	270	48,360	11,110,000	1,348,000	8,218,000
November..........	250	42,930	10,870,000	1,300,000	7,524,000
December..........	235	42,250	10,400,000	1,320,000	7,300,000
Total: 1947......	3,000	455,240	127,640,000	12,216,000	86,484,000
1946......	4,009	338,000	100,382,000	9,798,000	72,206,000

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MINERAL MARKET REPORTS
MMS. NO. 1568

METAL MINING IN SOUTH DAKOTA, 1947 - PRELIMINARY ANNUAL FIGURES

In 1947 the production of gold and silver from mines in South Dakota increased 30 and 31 percent, respectively, over 1946, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. The Homestake Mining Co. and the Bald Mountain Mining Co., the chief producers of these two metals in the State, reported that underground personnel was only 60 to 65 percent of that necessary for full-scale operation at their properties. The Belle Eldridge Gold Mines, Inc., incidental to development of its properties and test runs in its mill, recovered some gold and silver, and all the lead and zinc reported for the State in 1947.

Production for South Dakota in 1947 (in terms of recoverable metals) was 406,365 fine ounces of gold, 113,910 fine ounces of silver, 24,000 pounds of lead, and 32,000 pounds of zinc. These figures are based on 11 months' actual mine production with December production calculated from reports by mine operators, refineries (including the Denver Mint), and smelters of anticipated shipments and receipts. Production in 1946 was 312,247 fine ounces of gold and 86,901 fine ounces of silver; no lead or zinc was produced.

At the average prices used by the Bureau of Mines, as shown below, the calculated gross value of the output of these metals in 1947 was: Gold $14,222,775, silver $103,089, lead $3,504, and zinc $3,744, a total of $14,333,112. In 1946 the value was $10,998,861, of which $10,928,645 was in gold and $70,216 in silver. The price of gold, fixed by the United States Government, remained at $35 a fine ounce and the price of domestic-mined silver was $0.905 a fine ounce. The average weighted yearly price per pound including bonus payments for over-quota production of lead was $0.146 and zinc was $0.117.

Lawrence County.--The Homestake Mining Co. at Lead estimates its 1947 production at 392,400 fine ounces of gold and 79,600 fine ounces of silver, and states that underground labor is about 60 percent of that required for full production.

The Bald Mountain Mining Co. at Trojan reports that due to shortage of underground labor, its properties have been operated at 60 to 65 percent of normal capacity and estimate its 1947 production at 13,893 fine ounces of gold and 33,574 fine ounces of silver.

The Belle Eldridge Gold Mines, Inc., in the course of developing its properties near Deadwood and in running mill tests, produced about 41 tons of lead concentrate and 40 tons of zinc concentrate from which it is estimated that a total of 70 fine ounces of gold, 736 fine ounces of silver, 24,000 pounds of lead, and 32,000 pounds of zinc will be recovered. The company expects to commence operating on a steady production basis early in 1948.

Prepared by S. A. Gustavson, Denver Office, Metal Economics Branch, Economics and Statistics Division.

Pennington County.--Robert E. Nelson Marketed 2 ounces of gold from the Western Bell Lode.

Mine production of gold, silver, lead, and zinc in South Dakota, 1947, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Lead (pounds)	Zinc (pounds)
January........	36,076	9,334	-------------	-------------
February......	33,040	9,393	-------------	-------------
March.........	34,039	11,040	-------------	-------------
April.........	38,566	10,955	-------------	-------------
May...........	31,806	7,687	-------------	-------------
June..........	30,162	8,891	-------------	-------------
July..........	33,971	9,990	-------------	-------------
August........	32,884	9,773	-------------	-------------
September.....	39,867	10,251	-------------	-------------
October.......	35,537	9,476	14,000	-------------
November......	26,430	7,200	-------------	-------------
December......	33,987	9,920	10,000	32,000
Total: 1947...	406,365	113,910	24,000	32,000
1946...	312,247	86,901	-------------	-------------

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Mineral Market Reports
M.M.S. No. 1569

METAL MINING IN WASHINGTON, 1947 - PRELIMINARY ANNUAL FIGURES

Metal mining in Washington was erratic in 1947--lead output climbed 54 percent above that in 1946; zinc, 20 percent; and silver, 10 percent; copper and gold, however, were down 52 and 33 percent respectively, according to the Salt Lake Office of the Bureau of Mines, United States Department of the Interior. Although average prices for silver, copper, and lead were higher in 1947 than in 1946, the sharp decreases in output of gold and copper and the small drop in the average price of zinc permitted the total value of the five metals in 1947 to rise only 0.4 percent above that in 1946. Of the total value in 1947, zinc contributed 46 percent; lead, over 19; gold, 17; copper, 13; and silver, 4 percent.

Based on reports by operators and receipts at smelters and mints covering 10 months of the year and with November and December estimated from other sources of information, preliminary figures for 1947, with comparative figures for 1946, are given in the following table:

Mine production of gold, silver, copper, lead, and zinc in Washington, 1946-47, in terms of recovered metals

Metals	1946		1947	
	Quantity	Value	Quantity	Value
Gold, fine ounces...	51,168	$1,790,880	34,500	$1,207,500
Silver, fine ounces.	264,453	213,678	290,000	262,450
Copper, pounds.....	9,054,000	1,466,748	4,370,000	913,330
Lead, pounds.......	5,974,000	651,166	9,200,000	1,343,200
Zinc, pounds.......	22,658,000	2,764,276	27,266,000	3,190,122
Total value........	______	6,886,748	______	6,916,602

The value of the metals produced in 1947 has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: Gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.209 per pound ($0.162); lead, $0.146 per pound ($0.109); zinc, $0.117 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired June 30, 1947.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

No labor strikes affected the mining industry in Washington in 1947, but development and capacity production at a number of properties were hampered by labor shortages. The sharp decline in production of gold and copper was due largely to the closing of the Holden mine and mill late in 1946 to develop ore; production was resumed in August 1947, and, as a result, State output of gold, silver, copper, and zinc moved to a much higher level during the remainder of the year. Also, the Metaline Mining & Leasing Co. stopped production at its property in August to conduct only development for three to five months. Expiration of the Premium Price Plan on June 30 had little effect on metal mining in the State. Only one small property is reported to have closed; the effect on exploration being conducted at the time is not known.

Marked increases in ore production were reported from the Grandview mine of the American Zinc, Lead & Smelting Co. in the Metaline district, Pend Oreille County, the Kaaba Silver-Lead mine (formerly the Kaaba-Texas) in Okanogan County, the Deep Creek, Bonanza, Cleveland, and Young America mines in Stevens County, and the Aurum group in Ferry County; the Knob Hill mine, also in Ferry County, appears to have increased its tonnage slightly. These increases however were not great enough to counterbalance the large decline in ore output from the Holden group of the Howe Sound Co. in Chelan County and smaller decreases at the properties of the Pend Oreille Mines & Metals Co. and the Metaline Mining & Leasing Co. in the Metaline district. As a result, State ore production in 1947 was about 20 percent below that in 1946.

GOLD

Gold output in Washington in 1947 was the lowest since 1936. This sharp reduction resulted largely from nonproduction of ore from January to August at the Holden mine in Chelan County. The Knob Hill mine in Ferry County increased its gold output slightly and moved to first place among State gold producers, followed by the Holden mine and the Aurum group (Ferry County). These three producers furnished 97 percent of the State total gold in 1947. The output from placer mines was small.

SILVER

All leading producers of silver in Washington made gains in 1947, except the Holden mine. The Knob Hill mine (gold ore) continued in the lead, followed by the Holden group (zinc-copper ore) and the Kaaba Silver-Lead mine (zinc-lead ore). These three produced 74 percent of the State silver in 1947. Other mines supplying important quantities of silver were the Aurum group (gold ore), Cleveland (lead ore), Young America (zinc-lead ore), and Bonanza (lead ore). Gold ore furnished about 46 percent of the State silver in 1947.

COPPER

Yield of copper in Washington in 1947 was the lowest since 1937. Output during the year was almost at a standstill until August, when the Howe Sound Co. resumed production of zinc-copper ore at its Holden mine. No other properties contributed important quantities of the metal in 1947.

LEAD

The output of lead in Washington in 1947 was the highest in any peacetime year and has been exceeded only in the period 1942-44. The three leading producers, each reporting a marked gain above 1946 output, were the properties of the American Zinc, Lead & Smelting Co. and the Pend Oreille Mining & Leasing Co., both in the Metaline district, and the Bonanza mine in Stevens County. These three properties produced 84 percent of the State lead in 1947. Other important producers were Kaaba Silver-Lead Mines, Inc., Metaline Mining & Leasing Co., and Zenith Mines, Inc. (Cleveland mine).

ZINC

Zinc output in Washington in 1947, like that for lead, rose to the highest figure for any full peacetime year and has been surpassed only in 1941-42. About 97 percent of the State zinc in 1947 came from the properties of the American Zinc, Lead & Smelting Co., Pend Oreille Mines & Metals Co., Goldfield consolidated Mines Co. (Deep Creek mine, formerly operated by Jamison-Higginbotham Mining Co.), Howe Sound Co., and Metaline Mining & Leasing Co. Output of zinc for the year from the properties of the Howe Sound Co. and the Metaline Mining & Leasing Co. was considerably less than in 1946 because these properties used a part of the year for development only; large gains were made at the properties of the American Zinc, Lead & Smelting Co. and the Goldfield Consolidated Mines Co.; the Pend Oreille Mines & Metals Co. held close to its 1946 level.

Mine production of gold, silver, copper, lead, and zinc in Washington, in 1947, by months, in terms of recovered metals

Month	Gold (ounces)	Silver (ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January.....	1,456	13,400	2,000	650,000	2,120,000
February....	1,608	18,450	2,000	670,000	2,126,000
March.......	2,379	25,240	2,000	950,000	2,090,000
April.......	1,762	21,000	2,000	880,000	1,954,000
May.........	2,088	31,000	2,000	750,000	1,670,000
June........	1,800	18,200	2,000	730,000	2,350,000
July........	2,067	23,660	2,000	810,000	2,050,000
August......	4,220	32,000	712,000	830,000	2,530,000
September...	4,250	28,850	860,000	870,000	2,560,000
October.....	4,300	27,200	926,000	700,000	2,720,000
November....	4,250	26,000	928,000	680,000	2,546,000
December....	4,320	25,000	930,000	680,000	2,550,000
Total: 1947	34,500	290,000	4,370,000	9,200,000	27,266,000
1946	51,168	264,453	9,054,000	5,974,000	22,658,000

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MINERAL INDUSTRY SURVEYS

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For release January 30, 1948

Mineral Market Reports
M.M.S. No. 1570

METAL MINING IN MONTANA, 1947 - PRELIMINARY ANNUAL FIGURES

Increases of 155 percent in zinc, 87 percent in lead, and 82 percent in silver set the pace for a marked improvement in most phases of Montana's metal-mining industry in 1947 compared with 1946, according to the Salt Lake Office of the Bureau of Mines, United States Department of the Interior. Gold also had an excellent year, yield of the metal being 23 percent above that in 1946; copper production, however, lost ground slightly and recorded a decrease of 1 percent.

Increases in the average prices of silver, copper, and lead, plus the pronounced gains in output of four of the metals in 1947, reversed the four-year downtrend in total value of the five metals. Gold increased 23 percent in value; silver, 104 percent; copper, 27 percent; lead, 151 percent; and zinc, 145 percent, to give an over-all gain of 57 percent in total value--from $29,957,206 in 1946 to $47,033,160 in 1947. Of the total value in 1947, copper contributed 51 percent; zinc, 21 percent; silver, 12 percent; lead, 10 percent; and gold, 6 percent.

Based on reports by operators and receipts at smelters and Mint Offices for 10 months of the year and with November and December estimated from other sources of information, preliminary figures for 1947, with comparative figures for 1946, are given below.

Mine production of gold, silver, copper, lead, and zinc in Montana, 1946-47, in terms of recovered metals

Metals	1946 Quantity	1946 Value	1947 Quantity	1947 Value
Gold, fine ounces...	70,507	$2,467,745	86,400	$3,024,000
Silver, fine ounces.	3,273,140	2,644,697	5,952,000	5,386,560
Copper, pounds......	116,962,000	18,947,844	115,250,000	24,087,250
Lead, pounds........	16,560,000	1,805,040	31,000,000	4,526,000
Zinc, pounds........	33,540,000	4,091,880	85,550,000	10,009,350
Total value.........	________	29,957,206	________	47,033,160

The value of the metals produced in 1947 has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: Gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.209 per pound ($0.162); lead, $0.146 per pound ($0.109); zinc, $0.117 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired June 30, 1947.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

MINING

Labor was more plentiful in Montana in 1947 than in 1946, but in most places, especially at Butte, it was not plentiful enough to enable mines to operate at full capacity. No labor strikes occurred, and production of ore moved at a rather uniform rate throughout the year. During the second half of the year production of gold, lead, and zinc increased, silver showed little change, but copper declined.

Full information is lacking to determine the effect on Montana mining of the expiration of the Premium Price Plan on June 30. The North Butte mine, which closed in August, was the only large operation known to have shut down because of lack of premiums. A few mines shifted operations to higher-grade ore after July, and it is believed that some small and medium mines were affected in some ways, but details are largely wanting.

The outstanding feature in metal mining in Montana in 1947 was the marked expansion in production of zinc-lead ores from the Butte Hill mine and dumps of the Anaconda Copper Mining Co. at Butte. This feature largely accounted for the 24-percent increase in State output of ore--from 2,234,958 tons in 1946 to an estimated 2,780,000 tons in 1947. Production of copper ore declined, siliceous ores gained slightly, but zinc-lead, zinc, and lead ores together increased over 205 percent. About 61 percent of the total material treated in 1947 was copper ore (80 percent in 1946), 33 percent was zinc-lead, zinc, and lead ores (14 percent in 1946), and 6 percent was siliceous gold and silver ores (7 percent in 1946).

MILLING AND SMELTING

The 12,320-ton copper concentrator and the 2,000-ton slime-disintegrating plant of the Anaconda Copper Mining Co. at Anaconda were operated continuously in 1947, but at reduced rates; however the company 2,000-ton zinc concentrator treated a greater tonnage than in 1946. The company copper smelter (annual capacity 1,300,000 tons of charge) and the two electrolytic zinc plants at Anaconda and Great Falls (combined capacity 233,400 tons of slab zinc per year) also were operated throughout the year. In 1947 the zinc plants treated 423,000 tons of zinc concentrates containing 448,367,000 pounds of zinc compared with 401,963 tons containing 431,938,462 pounds of zinc in 1946. The concentrates were received from Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and several foreign countries. The company zinc-fuming plant at East Helena was operated throughout the year; much more hot slag was treated than in 1946, but the quantity of cold slag treated was greatly reduced. The output of zinc-lead fume increased from 26,180 tons in 1946 to 37,400 tons in 1947. Nearly all the fume was treated at the Great Falls Zinc plant.

The lead smelter of the American Smelting & Refining Co. at East Helena operated throughout the year and treated chiefly lead-silver concentrates from the Coeur d'Alene region in Idaho and the Loomis-Oroville district in Washington, residues from the electrolytic-zinc plants at Anaconda and Great Falls, and crude ores, concentrates, and old tailings from various districts in Montana.

A number of small to medium mills were constructed in Montana in 1947, but details of their operations are lacking.

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MINERAL MARKET REPORT
MMS NO. 1571

METAL MINING IN THE CENTRAL STATES, 1947 - PRELIMINARY ANNUAL FIGURES

Production of zinc by mines in the Central States as a whole decreased 19 percent in 1947 from 1946 and was the lowest since 1932, according to the Denver office of the Bureau of Mines, United States Department of the Interior. The output of lead decreased 5 percent. The principal factors affecting mine output of these two metals in 1947 were the retrenchment in zinc mining that followed expiration of the Premium Price Plan and the stimulus to lead mining and exploration afforded by the record high annual average price of lead. Zinc production in July, the first month after Federal premiums were discontinued, decreased to only 41 percent of the monthly average from January through June. Production increased gradually in the succeeding months and amounted to 58 percent of the January-to-June average in October and 57 percent in November. The principal straight lead mines operated steadily throughout the year, but the rate of ore extraction was generally lower than in 1946, as much development work was necessary to replenish ore reserves drawn upon during the war. The quantity of lead produced by zinc-lead mines did not decrease materially. Copper production, mostly from Michigan, increased 10 percent over 1946. The output of silver, all recovered as a byproduct of the mining of base metals, also increased 10 percent.

Preliminary figures for 1947, based on 11 months' actual production with December estimated, show an output (in terms of recoverable metals) of 79,000 fine ounces of silver, 25,800 short tons of copper, 156,600 short tons of lead, and 132,00 short tons of zinc. In 1946 the output was 71,703 ounces of silver, 23,520 tons of copper, 164,804 tons of lead, and 162,962 tons of zinc, indicating increases for 1947 of 7,297 ounces of silver and 2,280 tons of copper, and decreases of 8,204 tons of lead and 30,962 tons of zinc.

The prices used herein for calculating the value of the production in 1947 are the average Government price of $0.905 per fine ounce of silver and average weighted yearly prices (including an estimate for Government premiums) of $0.209 per pound of copper, $0.146 per pound of lead, and $0.117 per pound of zinc. In 1946 the price used for silver was $0.808, copper $0.162, lead $0.109, and zinc $0.122.

At the foregoing prices the value of the silver production in 1947 and 1946, respectively, was $71,495 and $57,936, copper $10,784,400 and $7,620,480, lead $45,727,200 and $35,927,272, and zinc $30,888,000 and $39,762,728 -- a total of $87,471,095 in 1947 compared with $83,368,416 in 1946.

Prepared by A. J. Martin, Denver Office, Metal Economics Branch, Economics and Statistics Division.

Mine production of silver, copper, lead, and zinc in the Central States, 1947, by States, and total 1946 in terms of recovered metals

State	Silver		Copper		Lead		Zinc		Total value
	Fine ounces	Value	Short tons	Value	Short tons	Value	Short tons	Value	
Arkansas	------	-------	------	----------	12	$3,504	12	$2,808	$6,312
Illinois	1,800	$1,629	------	----------	2,500	730,000	9,816	2,296,944	3,028,573
Kansas...	------	-------	------	----------	7,300	2,131,600	41,760	9,771,840	11,903,440
Kentucky.	------	-------	------	----------	180	52,560	376	87,984	140,544
Michigan.	3,200	2,896	23,800	$9,948,400	------	----------	------	----------	9,951,296
Missouri.	74,000	66,970	2,000	836,000	131,000	38,281,200	17,600	4,118,400	43,302,570
Oklahoma.	------	-------	------	----------	14,300	4,175,600	49,536	11,591,424	15,767,024
Wisconsin	------	-------	------	----------	1,208	352,736	12,900	3,018,600	3,371,336
Total:									
1947..	79,000	71,495	25,800	10,784,400	156,600	45,727,200	132,000	30,888,000	87,471,095
1946..	71,703	57,936	23,520	7,620,480	164,804	35,927,272	162,962	39,762,728	83,368,416
Increase or decrease 1947..	+7,297	+13,559	+2,280	+3,163,920	-8,204	+9,799,928	-30,962	-8,874,728	+4,102,679

Silver

In 1947 silver continued to be recovered as a byproduct by smelters treating Southeastern Missouri lead concentrates, which usually contain from 1 to 2 ounces of silver to the ton. A large part of the bullion made from these concentrates is not desilverized. Copper concentrates from Southeastern Missouri and Michigan and lead concentrates from the Southern Illinois fluorspar zinc-lead region yielded some recoverable silver. The Central States total output was 79,000 ounces compared with 71,703 ounces in 1946.

Copper

Mines in Michigan produced 23,800 tons of recoverable copper in 1947 compared with 21,663 tons in 1946. The producing companies were the Calumet and Hecla Consolidated Copper Co., operating the Ahmeek stamp mill, 2 reclamation plants, 1 smelter, and 7 mines in the Upper Peninsula area; the Copper Range Co., which treated clean-up material and old tailings from its Champion mine in Houghton County and ore produced in development at the White Pine property in Ontonagon County; the Isle Royale Copper Co., operating the Isle Royale mine and stamp mill near Houghton; and the Quincy Mining Co., operating its reclamation plant at Mason on Torch Lake. The rise in the market price of copper to 21.50 cents a pound early in March and the maintenance of this price the rest of the year brought the average price (including Federal premiums) for the year to a little higher level than the 20.48 cents paid for the mine output in 1946.

The output of recoverable copper in Missouri totaled 2,000 tons compared with 1,857 tons in 1946. Part of the output in both years was contained in byproduct matte shipped from smelters treating Southeastern Missouri lead concentrates, and part in copper concentrates shipped from the Madison mill at Fredericktown, which treated lead-copper ore.

Lead and Zinc

Southeastern and Central Missouri. -- Production of recoverable lead by mines in Southeastern Missouri totaled about 128,500 tons in 1947 (around 35 percent of the United States total mine output) compared with 135,796 tons (41 percent of the United States total) in 1946.

The St. Joseph Lead Co., the principal producer, continued to operate the Federal, Leadwood, Desloge, and Bonne Terre groups of mines in St. Francois County and made preparations to reopen the old Doe Run group, which had been idle since 1913. Each of the first four groups of mines is equipped with a mill; the mills together had a daily capacity of 22,800 tons at the end of 1947. The output of lead concentrates was not as large as in 1946. The company has a smelter at Herculaneum (Mo.) which treats part of the company concentrates and also handles custom concentrates. The electrothermic zinc-recovery slag plant at the smelter continued to be in the experimental stage during the year. The extensive operations of the company are described in the August issue of Mining & Metallurgy, designated "St. Joe" number.

In Madison County the producing mines and active mills were the Mine La Motte group and 1,500-ton mill, operated by the St. Joseph Lead Co.; the St. Louis Smelting & Refining Co. Madison lead-copper group and 600-ton mill; the Park City Consolidated Mines Co. Ruth mine and 500-ton mill: and the Fredericktown Lead Co. Catherine-Fleming group and 400-ton mill. In Jefferson County the Valle Mines leases and 200-ton mill of the DeSoto Lead & Zinc Co. were taken over by the Fredericktown Lead Co. in May; the mill was operated on ore from dumps, and considerable work was done on opening and sampling old underground workings. Some galena, mostly from barite diggings, was shipped from other counties in Southeastern and Central Missouri.

Tri-State district (Kansas, Oklahoma, Southwestern Missouri). -- Production of zinc concentrates in the Tri-State district totaled about 202,300 tons and lead concentrates 32,044 tons in 1947 compared with 258,705 and 30,650 tons, respectively, in 1946. The value of the output in 1947 (including Government premiums paid from January through June) was about $20,960,000 for zinc concentrates and $6,028,000 for lead concentrates compared with $30,079,745 and $5,038,018, respectively, in 1946. The district contributed about 17 percent of the United States total mine output of zinc in 1947 and 24 percent in 1946; of the lead, it contributed 6 percent in 1947 and 7 percent in 1946. After the Premium Price Plan expired June 30, 1947 more than half the district mines and all but 2 of the tailing mills shut down, and many of them remained idle or operated for a short time only the rest of the year. The recovery of combined zinc and lead concentrates from crude ore averaged 3.1 percent the first half of the year and 4.23 percent the last half; the recovery from old tailings was 0.370 percent the first half and 0.434 percent the last half of the year. About 22 mine mills and 3 tailing mills were operating in December 1947 compared with 29 and 14, respectively, in December 1946. About 70 mines, many of which were operating with small crews on selective mining, were producing in December 1947 compared with 170 in December 1946. Stocks of concentrates in the mill bins were small at the end of 1947.

Mine production of lead and zinc in the Tri-State region
(preliminary figures) 1947 by areas, in short tons

	Material treated		Concentrates		Recoverable metal	
	Crude ore	Old tailings	Lead	Zinc	Lead	Zinc
Kansas........	2,266,000	1,401,000	9,629	77,194	7,300	41,760
Southwestern Missouri......	1,189,000	246,000	3,500	32,913	2,600	17,254
Oklahoma......	2,770,000	4,037,000	18,915	92,193	14,300	49,536
Total: 1947..	6,225,000	5,684,000	32,044	[1]202,300	24,200	108,550
1946..	8,271,512	10,176,620	30,650	[2]258,705	23,363	139,038
Increase or decrease 1947.........	-2,046,512	-4,492,620	+1,394	-56,405	+ 837	-30,488

[1] Includes 21,558 tons from old tailings.
[2] Includes 33,795 tons from old tailings.

The weekly quoted price of zinc concentrates at Joplin in 1947 was $64 from January through August and $70.35 the rest of the year. From September 1 through December the Eagle-Picher Mining & Smelting Co. paid $72 a ton for concentrates made from ore shipped to its Central mill. The quoted price of lead concentrates was $160.50 a ton for the week ended January 4, $166.85 from January 11 to February 22, $181.25 March 1, and $195.65 from March 8 through December. Government premium payments from January through June averaged $55.89 a ton of zinc concentrates and $7.43 a ton of lead concentrates.

The Oklahoma-Kansas or Picher field continued to be the principal center of operations; it yielded about 79 percent of the Tri-State total output of zinc and 88 percent of the lead in 1947. Other producing areas included Duenweg, Galena, Granby, Joplin, Oronogo, Stark City, Waco, Webb City, and Wentworth. The Eagle-Picher Mining & Smelting Co. was the largest individual producer of both zinc and lead in the district. The company operated mines in the Picher, Galena, and Oronogo areas and its 15,000-ton Central mill at Cardin (Okla.) on company account and operated the paxson mine group and mill as agent for the Reconstruction Finance Corporation until that group was closed June 30. The Central mill treated about 2,970,000 tons of combined company and custom ore in 1947 compared with 3,496,105 tons in 1946.

The St. Louis Smelting & Refining Co. was the second-largest producer of zinc; it operated a central mill near Baxter Springs and one at Waco, both of which served company mines and also handled custom ore. The Kansas Explorations, Inc., operating the Snapp and Jasper mills in Missouri and the Ritz mine in Oklahoma, was the third largest producer of zinc, and ranked third or fourth in lead production. The Federal Mining & Smelting Co., operating a group of mines and a mill each at Duenweg and Granby and other mines in the Picher area shipping to the Central mill, ranked second in lead production. The Park Walton mine of the Melrose Mining Corporation was among the larger producers of lead.

Other producers from mine dirt included the American Zinc Co., Beck Mining Co., Cameron & Henderson, C. G. & C. Co., Evans-Wallower Zinc, Inc.; the Davis Big Chief, Dines, F. W. Evans, Harris, Lula Bell, Mahutska, Marcia K., Mark Twain, MacArthur, M. & W., Oronogo Mutual, Robinson, Scott, Stotts City, Weidman, and W. M. & W. Mining Companies; and the Rialto Mining Corporation. The Mission, Playter, St. Louis Mining & Milling, Wade-Rea, and Northside (C. G. & C.) mills treated company and custom ore, and the Southside (Hess Cave), and Dale Mining Co. mills treated company ore. The Barr Cleanup mill operated.

The producing tailing mills included the Atlas, Big Chief, Britt & Britt, C. G. Cardin Nos. 2, 3, Captain, and Western, Missouri Chitwood, Sample (Martin), and Tri-State Zinc Ottawa and Sooner; all these mills except the Sooner shut down after the Premium Price Plan expired. The Big Chief and Captain resumed operations later in the year.

A new producer opened in 1947 was the Childress and Sons Vannatta mine near Melrose, on which the sinking of a 426-foot shaft was completed early in the year. Other new shafts were sunk on the Pelican, Magajupa, and Lindsey properties. Prospect drilling was confined mainly to developing extensions of ore bodies, but some drilling was done outside known mineralized areas. The Bureau of Mines did churn drilling in the Picher (Kansas part) and Carthage areas, and continued work on the investigation of the district ore reserves. The Bureau's Metal Economics Branch office at Joplin was merged with the Denver office in November as an economy measure, and the Joplin office was closed.

Arkansas. -- Small tonnages of zinc concentrates were shipped from the Mattie Mae and Palmer mines in Marion County and the Levy in Sevier County. The Brewer mine in Newton County shipped some lead concentrates. Recoverable zinc produced totaled about 12 tons and lead 12 tons compared with 85 and 2 tons, respectively, in 1946.

Illinois. -- The Illinois output of recoverable zinc was 9,816 tons and lead 2,500 tons in 1947 compared with 8,798 and 3,865 tons, respectively, in 1946. The Northern Illinois area alone produced 4,509 tons of zinc and 642 tons of lead in 1947. The Tri-State Zinc, Inc., operated its flotation mill south of Galena throughout the year, treating ore from the Gray and Bautsch mines. The Big Six (North Unity) and Bennett (South Unity) mines operated until the Premium Price Plan expired June 30. The Eagle-Picher Mining & Smelting Co. continued its exploratory drilling campaign north of Galena and began sinking a shaft late in the year. The Bureau of Mines drilled on the Royall Princess property.

In Southern Illinois the Ozark-Mahoning Co. continued to operate its fluorspar zinc-lead mines in the Cave in Rock area and flotation mill at Rosiclare. Besides company ore, the mill treated ore and bulk concentrates containing zinc, lead, and fluorspar from other mines in Illinois and Kentucky. The Minerva Oil Co. operated steadily its fluorspar-zinc mine and flotation mill north of Cave in Rock. The Patrick open-pit lead mine of the Alco Lead Co. continued in operation except from May 1 through August, during which time the company built a new flotation mill.

Kentucky. -- The K. T. Dome Mining Syndicate operated the old Gratz zinc-lead mine and 50-ton mill at Gratz in Owen County during the first 5 months of 1947. Some of the fluorspar producers in Crittenden and Livingston Counties shipped by-product lead and zinc concentrates to smelters and byproduct material containing zinc, lead, and fluorspar to the Mahoning mill at Rosiclare, Ill. The State output of recoverable zinc was about 376 tons and lead 180 tons compared with 314 and 95 tons, respectively, in 1946.

Wisconsin. -- The output of recoverable zinc in Wisconsin was about 12,900 tons in 1947 compared with 14,276 tons in 1946. Lead production totaled 1,208 tons in 1947 and 1,588 tons in 1946. Most of the mines were closed after the Premium Price Plan expired June 30, 1947. The Vinegar Hill Zinc Co. custom flotation mill at Cuba City, principal producer of concentrates in the district, maintained a steady production rate throughout the year by treating ore from the Office of Metals Reserve stock pile after shipments from the mines decreased. The metal output from the stockpiled ore is credited to the year in which the ore is milled rather than to the year in which it is mined. The principal Wisconsin shippers to the Vinegar Hill mill in 1947 (most of which shut down when the Premium Price Plan expired or shortly thereafter) included the following mining companies: Alderson, C. F. & H. (Mulcahy mine), Consolidated, Cuba (Andrews), Deuce (New Harty, Deuce No. 2), D. H. & S., Double Dick, Hofer (Boyle, DeRocher), Kittoe, Little Benny (Monroe, Penna-Benton), Little Giant, Little Grant (Arensdorf & Murray), Meloy & Baker (Crawhall), Mifflen (Defense), Murray and Richards (James), Harold Reinke Partnership (Federal), Virgil Chadwick Partnership, and Whitechurch & Farr (Little Mullen mine). Other Wisconsin mills making finished concentrates were the Dodgeville Mining Co., W. E. Faithorn, and Inland Lead & Zinc Co. (Coker) mine mills and the Chestnut Hill Zinc Co. and Northwest Zinc Co. tailing mills. The Dodgeville Mining Co. and the Chestnut Hill Zinc Co. mills operated throughout the year; the other three mills were closed soon after the Premium Price Plan expired.

Activity in leasing and exploratory drilling in the Wisconsin area was sustained throughout the year. Companies participating included the Calumet Corporation (subsidiary of Calumet and Hecla Consolidated Mining Co.); the St. Joseph Lead Co; the American Metal Co., Ltd., the American Zinc, Lead & Smelting Co., and local operating companies. The Bureau of Mines did diamond drilling on zinc-lead propertie in the Rodham area and test pitting in other areas considered to be favorable for shallow lead deposits.

Mine production of silver, copper, lead, and zinc
in the Central States in 1947, by months, in terms of recovered metals

Month	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January	6,410	1,908	14,501	14,155
February	8,769	1,974	13,490	12,885
March	6,895	2,139	14,287	14,403
April	6,413	2,200	13,834	14,393
May	5,682	2,109	13,434	15,010
June	5,413	2,240	13,195	15,690
July	5,945	2,283	12,255	5,918
August	6,987	2,233	12,174	7,378
September	6,674	2,358	12,107	7,571
October	9,450	2,466	13,666	8,338
November	5,220	1,950	11,880	8,193
December	5,142	1,940	11,777	8,066
Total - 1947	79,000	25,800	156,600	132,000

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

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J. A. KRUG, Secretary James Boyd, Director

For Release January 20, 1948,

MINERAL MARKET REPORTS
MMS NO. 1572

METAL MINING IN COLORADO, 1947 - PRELIMINARY ANNUAL FIGURES

The Colorado production of gold, silver, copper, lead, and zinc increased in 1947 over 1946, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. Gold production showed an increase of 17 percent over 1946, with production reaching the peak during June and July. In the last part of the year several placer operations were closed because of high labor and material costs, resulting in a decline of production during the last four months, which was partially offset by increases of production from Teller County. Silver production increased 13 percent--the production trend, in general, follows that of lead. Copper production increased 22 percent; this metal is recovered chiefly as a by-product of lead and zinc mining. Lead production increased 7 percent; production increased materially after the ending of the Premium Price Plan on July 1, chiefly because several operators shifted underground work to higher-grade sections of their mines. Zinc production increased 4 percent; however, the value of the metal produced, due to a decrease in the average weighted price, was slightly less than in 1946. The output of zinc was relatively steady throughout the year. Labor, in general, was adequate, except in the gold districts. There were no labor strikes in metal mines in Colorado in 1947.

In 1947 Colorado metal mines yielded (in terms of recoverable metals) 166,255 fine ounces of gold, 2,526,811 fine ounces of silver, 4,294,000 pounds of copper, 36,320,000 pounds of lead, and 75,144,000 pounds of zinc. These preliminary figures are based on 10 months' actual mine production with November and December production calculated from reports by mine operators, refineries (including the Denver Mint), and smelters of anticipated shipments and receipts. Production in 1946 was 142,613 fine ounces of gold, 2,240,151 fine ounces of silver, 3,508,000 pounds of copper, 34,072,000 pounds of lead, and 72,294,000 pounds of zinc.

Prepared by S. A. Gustavson, Denver Office, Metal Economics Branch, Economics and Statistics Division.

Mine production of gold, silver, copper, lead, and zinc in Colorado in 1947[1] by counties, in terms of recovered or recoverable metals

County	Gold[2]		Silver[3]		Copper	
	Fine ounces	Value	Fine ounces	Value	Pounds	Value
Adams.........	423	$14,805	71	$64	---	---
Boulder........	2,223	77,805	6,456	5,843	10,000	2,090
Chaffee........	296	10,360	48,558	43,945	262,000	54,758
Clear Creek....	3,060	107,100	173,599	157,107	47,000	9,823
Custer.........	31	1,085	24,341	22,029	5,000	1,045
Dolores........	105	3,675	123,558	111,820	207,000	43,263
Douglas........	---	---	---	---	---	---
Eagle..........	1,027	35,945	248,418	224,818	432,000	90,288
Fremont........	7	245	496	449	19,000	3,971
Garfield.......	1	35	1,841	1,666	---	---
Gilpin.........	301	10,535	3,462	3,133	5,000	1,045
Grand..........	1	35	---	---	---	---
Gunnison.......	511	17,885	53,468	48,389	44,000	9,196
Hinsdale.......	---	---	---	---	---	---
Jackson........	---	---	8	7	2,000	418
Jefferson......	122	4,270	1,375	1,244	156,000	32,604
Lake...........	16,953	593,355	265,653	240,416	215,000	44,935
LaPlata........	937	32,795	666	603	---	---
Mineral........	237	8,295	312,038	282,394	47,000	9,823
Montezuma......	257	8,995	148	134	---	---
Montrose.......	7	245	7,780	7,041	119,000	24,871
Ouray..........	4,978	174,230	134,169	121,423	272,000	56,848
Park...........	16,122	564,270	22,269	20,153	21,000	4,389
Pitkin.........	5	175	31,877	28,849	---	---
Rio Grande.....	2,004	70,140	2,358	2,134	18,000	3,762
Routt..........	---	---	---	---	---	---
Saguache.......	55	1,925	21,590	19,539	24,000	5,016
San Juan.......	19,661	688,135	428,952	388,202	806,000	168,454
San Miguel.....	38,920	1,362,200	435,630	394,245	1,515,000	316,635
Summit.........	1,823	63,805	171,612	155,309	68,000	14,212
Teller.........	56,188	1,966,580	6,418	5,808	---	---
Total: 1947....	166,255	5,818,925	2,526,811	2,286,764	4,294,000	897,446
1946....	142,613	4,991,455	2,240,151	1,810,042	3,508,000	568,296
Increase or decrease, 1947..	+23,642	+827,470	+286,660	+476,722	+786,000	+329,150

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[1] Actual 11 months with December estimated.

[2] Includes placer production as follows: 1947, 18,537 ounces ($648,795); 1946, 20,172 ounces ($706,020).

[3] Includes placer production as follows: 1947, 3,590 ounces ($3,249); 1946, 3,698 ounces ($2,988).

Mine production of gold, silver, copper, lead, and zinc in Colorado in 1947, by counties, in terms of recovered or recoverable metals -- Continued

County	Lead		Zinc		Total value 1947[4]	Total value 1946[5]
	Pounds	Value	Pounds	Value		
Adams..........	----------	----------	----------	----------	$14,869	$20,236
Boulder........	122,000	$17,812	----------	----------	103,550	143,242
Chaffee........	35,000	5,110	122,000	$14,274	128,447	134,157
Clear Creek....	914,000	133,444	379,000	44,343	451,817	400,141
Custer.........	216,000	31,536	209,000	24,453	80,148	115,580
Dolores........	4,032,000	588,672	6,279,000	734,643	1,482,073	1,493,309
Douglas........	----------	----------	----------	----------	----------	35
Eagle..........	1,846,000	269,516	34,198,000	4,001,166	4,621,733	4,215,770
Fremont........	8,000	1,168	41,000	4,797	10,630	38,784
Garfield.......	25,000	3,650	96,000	11,232	16,583	18,689
Gilpin.........	134,000	19,564	106,000	12,402	46,679	35,500
Grand..........	----------	----------	----------	----------	35	----------
Gunnison.......	2,469,000	360,474	2,760,000	322,920	758,364	216,611
Hinsdale.......	----------	----------	----------	----------	----------	1,110
Jackson........	----------	----------	----------	----------	425	----------
Jefferson......	----------	----------	----------	----------	38,118	17,353
Lake...........	8,686,000	1,268,156	9,727,000	1,138,059	3,234,921	3,108,798
LaPlata........	----------	----------	----------	----------	33,398	19,471
Mineral........	615,000	89,790	16,000	1,872	392,174	357,296
Montezuma......	----------	----------	----------	----------	9,129	5,248
Montrose.......	----------	----------	----------	----------	32,157	66,766
Ouray..........	1,768,000	258,128	1,515,000	177,255	787,884	828,991
Park...........	178,000	25,988	829,000	96,993	711,793	815,382
Pitkin.........	259,000	37,814	29,000	3,393	70,231	59,303
Rio Grande.....	2,000	292	----------	----------	76,328	68,347
Routt..........	----------	----------	----------	----------	----------	1,759
Saguache.......	803,000	117,238	448,000	52,416	196,134	149,533
San Juan.......	6,300,000	919,800	3,923,000	458,991	2,623,532	2,253,957
San Miguel.....	5,296,000	773,216	4,111,000	480,987	3,327,233	2,367,082
Summit.........	2,612,000	381,352	10,356,000	1,211,652	1,826,330	1,277,570
Teller.........	----------	----------	----------	----------	1,972,388	1,673,439
Total: 1947...	36,320,000	5,302,720	75,144,000	8,791,348	23,097,703	----------
1946...	34,072,000	3,713,848	72,294,000	8,819,368	----------	19,903,509
Increase or decrease, 1947..	+2,248,000	+1,588,372	+2,850,000	-28,020	+3,194,194	----------

[4] Average value of metals in 1947: Gold, $35 per fine ounce; silver, $0.905 per fine ounce; copper, $0.209 per pound; lead $0.146 per pound; zinc, $0.117 per pound.

[5] Average value of metals in 1946: Gold, $35 per fine ounce; silver $0.808 per fine ounce; copper, $0.162 per pound; lead $0.109 per pound; zinc $0.122 per pound.

At average prices used by the Bureau of Mines, as shown below, the calculated gross value of the output of these metals in 1947 was: Gold $5,818,925, silver $2,286,764, copper $897,446, lead $5,302,720, and zinc $8,791,848, a total value of $23,097,703. In 1946 the total value was $19,903,509, indicating an increase in 1947 of $3,194,194 (16 percent).

The price of gold, fixed by the United States Government, remained at $35 per fine ounce throughout 1947, and the price of domestic-mined silver was $0.905 a fine ounce (the average weighted yearly price per ounce in 1946 was $0.808). The averge weighted yearly price per pound, including bonus payments for over-quota production, of copper advanced from $0.162 in 1946 to $0.209 in 1947 and lead from $0.109 to $0.146, but zinc decreased from $0.122 in 1946 to $0.117 in 1947.

Adams County.--Gold and silver were recovered as byproducts from gravel washing plants by W. A. Kerkling from the Brannan Sand & Gravel Co. pit No. 10 near Lakewood, and by Kerkling & Slensker from the Superior Sand & Gravel Co. pit near Lakewood.

Boulder County.--There was a marked decrease in the production of gold and silver from mines in Boulder County in 1947 as compared with 1946. Only two properties produced throughout the year--the American mine operated by James Pastore and the Black Cloud mine operated by Slide Mines, Inc. In June, Harrison S. Cobb started shipping ore from the dumps of the Ingram mine and continued throughout the year. Other mines in the county made sporadic shipments during the year.

Chaffee County.--The bulk of the ore produced from Chaffee County came from the Garfield mine operated by S. E. Burleson. The production of gold, lead, and zinc from the county decreased appreciably in 1947, while silver and copper production increased.

Clear Creek County.--The production of gold, lead, and zinc showed decreases, while silver and copper production showed increases in the county in 1947 over 1946. The bulk of the gold production was from the Dixie mine operated by LeRoy Giles & Co. The leading producers of silver, lead, and zinc were the Lupton Mining Co. operating the New Boston mine, the Elida Mining Co. operating the Jo Reynolds mine, and C. O. Parker & Co. operating the Smuggler mine. Numerous mines and several mills were operated intermittently throughout the year. Considerable prospecting and development work preparatory to opening of properties was done during the year.

Custer County.--Two mines accounted for the bulk of the production from the county in 1947. They were the Lady Franlin mine operated by George L. Beardsley and the Defender mine operated by Henning, Kettle & Walker.

Dolores County.--The Rico Argentine Mining Co. accounted for the bulk of the production from this county and was one of the major zinc-lead-silver producers in the State. The company operated its group of mines and 135-ton selective-flotation mill continuously during the year. The following three operators accounted for the remaining production from the county: Louis M. Jones, Markey Bros., and Stamphel & Barnes.

Eagle County.--The New Jersey Zinc Co. Empire zinc division, by far the largest producer of zinc in the State, continued to operate its Eagle mine and 600-ton underground selective-flotation mill at Gilman throughout the year. Improvements and additions were made in the company mill with the expectation of ultimately raising its capacity to 1,200 tons per day.

El Paso County.--The Golden Cycle mill at Colorado Springs operated throughout the year on company and custom ores. About 701,000 tons of gold and gold-silver ores were treated in 1947, as compared with 306,790 tons in 1946. Of the total ores treated, about 693,000 tons were company and custom gold-silver sulfotelluride ores from the Cripple Creek district (Teller County) and approximately 18,000 tons were gold or gold-silver ores from various shippers in Boulder, Clear Creek, Gilpin, Gunnison, Lake, Summit Counties.

Fremont County.--The Horseshoe Mining Co. operated the Horseshoe mine, beginning shipments in September and accounted for the bulk of the production from the county during 1947.

Garfield County.--A. G. Fischer, operating the Sunshine Lode near Rifle, was the leading operator in the county during the year.

Gilpin County.--Intermittent shipments from six lode mines and several small hand-operated placer mines accounted for the production from the county during the year. The largest producer was the Success Gold Mining & Milling Co.

Gunnison County.--Production of silver, lead, and zinc in Gunnison County increased considerably in 1947 over 1946, chiefly as a result of greater output from the Lost Contact and Erie-Sunset mines operated by the Callahan Zinc-Lead Co., Inc. The company constructed a 100-ton flotation and gravity-concentration mill in 1947 which was expected to be placed in operation in December. The Carter Mines, Inc., ceased operation of its gold mine in April, accounting for the decrease in the production of gold from the county.

Jefferson County.--Gowan Enterprizes, Inc., operated the Malachite mine from January through October. The mine accounted for all the production from the county, except 18 ounces of gold and 3 ounces of silver which were produced as byproducts of gravel washing operations.

Lake County.--The total value of the metal output in Lake County increased 6 percent in 1947 over 1946; however, the actual production of silver, lead, and zinc decreased.

The American Smelting & Refining Co. operated its Arkansas Valley lead bullion-leady copper matte smelter throughout the year.

The Resurrection Mining Co. operated its mine and 600-ton selective-flotation mill continuously throughout 1947. The mill treated, in addition to company ore, custom ores from Clear Creek, Lake, Park, Saguache, and Summit Counties.

The American Smelting & Refining Co. operated its Leadville milling unit (350-ton capacity) on company ore from mines in Summit County and custom ores from mines in Chaffee, Clear Creek, Custer, Gunnison, Lake, Mineral, Park, Pitkin, Saguache, San Juan, and Summit Counties.

The John Hamm Mining & Milling, Ltd., operated its 600-ton gravity-concentration mill on ores from various dumps in the California district. After the ending of the Premium Price Plan on July 1 treatment for the recovery of zinc was ceased; additions and revisions were made to the mill for the purpose of recovering lead from lead-carbonate ores.

Other operators in the district included R. L. Jones operating the Garabaldi mine, Ibex Mining Co. operating the Ibex mine, General Gold Corp. operating the Mt. Elbert Placer, Key Gold Placer Co. operating the Key Placer, New Monarch Lease operating the New Monarch mine, Harry Sundstrom operating the Valley mine, American Smelting & Refining Co. operating the American dump, John Joyce operating the Breece mine, and McCaughan & Co. operating the Dolly B. mine.

La Plata County.--Bert Thompson, operating the Bessie G. mine, accounted for the bulk of the production from the county in 1947. Small lots of gold ore were shipped by A. B. Crosby and B. F. Self & T. C. Coffelt.

Mineral County.--The Emperius Mining Co., the chief producer in the county, operated its 100-ton flotation mill throughout the year on ore from its various mines. The company is driving the Commodore No. 5 tunnel in order to open ore bodies in the district at a lower level. Other operators in the county included the New Ridge Mining Co. operating the Mexico mine, the Commodore Mine Lease, and the Volunteer Lease.

Montezuma County.--The Ute Mining Co. operated its 25-ton amalgamation-flotation mill and Red Arrow group of mines from May through November.

Montrose County.--The New Cashin Mines, Inc., operated the Cashin group from January through April and shipped copper fluxing ore to the Garfield, Utah, smelter.

Ouray County.--The total value of metals produced from Ouray County in 1947 decreased 5 percent from 1946. The American Zinc Lead & Smelting Co. operated the Bachelor mine and American No. 1 350-ton flotation- and gravity-concentration mill in Ouray County and the San Antonio group in San Juan County. Custom ores were accepted at the mill from mines in Ouray, San Juan, and San Miguel Counties. Other principal producing mines in the county were the Camp Bird mine and 125-ton amalgamation-flotation mill operated by King Lease, Inc., and the Michael Breen mine operated by Southwest Metals Co.

Park County.--The total value of metals produced from Park County decreased 13 percent in 1947 from 1946 as a result of the considerable decrease in production of gold from placer operations during 1947. However, the production of silver, copper, lead, and zinc was slightly greater in 1947 than in 1946. The South Platte Dredging Co. operated its electrically powered connected-bucket dredge near Fairplay; Timberline Dredging Co. operated from May through September; and Cooley Bros. operated its dragline dredge from May through September. Buckskin Joe Mines, Ltd., operated the Phillips group of mines in Buckskin Gulch throughout the year. M. J. Krokicki operated the Orphan Boy mine.

Pitkin County.--The gross value of metal production from mines in Pitkin County increased 18 percent in 1947 over 1946. Only two properties were worked continuously throughout 1947; they were the Midnight mine operated by the Midnight Mining Co. and the Smuggler mine operated by Herron Bros.

Rio Grande County.--All the production from this county in 1947 came from the Gold Links mine.

Saguache County.--The bulk of the metal production in 1947 came from the Rawley group operated by Wm. J. Costello and the Superior-Erie group operated by the Superior Mines Division of the Conejos Corp.; both companies ceased operations with the ending of the Premium Price Plan on July 1. Other producers in the county were Tom Raymond, P. M. Wallin, Nicholas Keserich, Nevada Mines, and the Pratt-Bonanza Mining & Milling Co.

San Juan County.--Production of gold, silver, copper, and zinc from mines in San Juan County in 1947 increased, while lead production decreased; the total value of these five metals was 16 percent greater in 1947 than in 1946. The principal producers in the county were: The Shenandoah-Dives Mining Co. operating its mine and 700-ton selective-flotation mill in which custom ores (chiefly from mines in the county) were accepted; Denver Equipment Co. operating the Pride of the West group and Green Mountain mines and its 100-ton selective-flotation mill; Highland Mary Mines, Inc., operating the Highland Mary mine and 100-ton selective-flotation mill; Lead Carbonate Mines operating the Lead Carbonate mine and new 50-ton flotation-concentration mill (placed in operation in October); and the United States Coal Corp. operating the Lark mine from January through August--the operating name was then changed to the United States Oil & Development Co. and shipments of ore were resumed in October.

San Miguel County.--The production of all metals from San Miguel County increased in 1947 over 1946; the total gross vale of these metals rose 41 percent. Telluride Mines, Inc., operated its group of mines and treated the ore in the company 550-ton amalgamation and gravity- and flotation-concentration mill. The company continued to drive the 3-mile, 9- by 9-foot, tunnel in the sedinets at the mill level to connect with the Pandora and Smuggler Union veins. About 2,600 feet of tunnel had been driven at the end of 1947. The Idarado Mining Co. operated the Black Bear property through the 12,000-foot Treasury Tunnel, with its portal in Ouray County, and its 300-ton selective-flotation mill located at the tunnel portal. Alta Mines, Inc., operated the Alta-St. Louis mine and its 100-ton flotation mill continuously throughout the year except for the period November 1 through December 15. The Silver Bell Mines Co. operated the Silver Bell mine and 100-ton flotation-concentration mill at Ophir.

Summit County.--The total value of metals produced from Summit County mines increased 43 percent in 1947 over 1946. The more important producers in the county included the American Smelting & Refining Co. operating chiefly the Victory and Wilson mines, Wilfley Leasing Co. operating the Wilfley mine, Garvie London Gold Mining Co. operating the Country Boy mine, Carl A. Kaiser operating the Wellington mine, Clark McKey Development Co. operating the Snowbank mine, and the Florado Mining Co. operating the Pinnacle mine and its flotation mill. Numerous other small operators in the county made shipments throughout 1947.

Teller County.--Mines in the Cripple Creek district continued to be the major source of gold in Colorado; the output increased 18 percent in 1947 over 1946, but was still less than half of the output of the last pre-war year, 1941. Labor continued to be insufficient and over three-fourths of the ore treated from the distric was from dumps. The bulk of the output from the district was recovered from mines or dumps operated by the Golden Cycle Corp., the Portland and Vindicator mines operated by the United Gold Mines Co., the Stratton Estate group operated by lessees, and the Cresson mine operated by the Cresson Consolidated Gold Mining & Milling Co.

Mine production of gold, silver, copper, lead, and zinc in Colorado, in 1947, by months, and in terms of recovered metal

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January..........	11,475	144,650	272,000	2,420,000	5,920,000
February........	12,008	150,627	268,000	2,200,000	5,714,000
March...........	13,050	163,190	310,000	2,680,000	6,404,000
April...........	14,615	163,499	336,000	2,900,000	6,173,000
May.............	13,550	230,500	382,000	2,940,000	5,960,000
June............	15,290	245,200	442,000	3,350,000	6,900,000
July............	15,164	193,100	290,000	2,500,000	5,900,000
August..........	13,730	235,650	410,000	3,255,000	6,000,000
September.......	14,151	241,825	384,000	3,465,000	6,378,000
October.........	14,882	255,220	470,000	3,660,000	7,030,000
November........	14,260	257,350	380,000	3,600,000	6,540,000
December........	14,030	246,000	350,000	3,350,000	6,220,000
Total: 1947.....	166,255	2,526,811	4,294,000	36,320,000	75,144,000
1946.....	142,613	2,240,151	3,508,000	34,072,000	72,294,000

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

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MINERAL MARKET REPORT
No. MMS 1573

METAL MINING IN NEVADA, 1947 - PRELIMINARY ANNUAL FIGURES

Production of gold in Nevada in 1947 was slightly below the total for 1946 and was the lowest in quantity since 1895, according to preliminary figures compiled by the San Francisco office of the Bureau of Mines, United States Department of the Interior. Silver output, on the other hand was slightly higher than in 1946. Of the base metals copper, lead, and zinc, copper declined slightly in quantity but increased substantially in value, lead showed a minor gain in quantity with an appreciable increase in value; but zinc showed a marked drop in quantity and value largely because of the termination of the Premium Price Plan on June 30, 1947.

Mines in Nevada yielded (in terms of recovered metals) 87,200 fine ounces of gold valued at $3,052,000, 1,254,900 fine ounces of silver valued at $1,135,685, 95,290,000 pounds of copper valued at $19,915,610, 14,660,000 pounds of lead valued at $2,140,360, and 35,560,000 pounds of zinc valued at $4,160,520. The comparative outputs in 1946 were 90,680 ounces of gold valued at $3,173,800, 1,250,651 ounces of silver valued at $1,010,526, 97,232,000 pounds of copper valued at $15,751,584, 14,350,000 pounds of lead valued at $1,564,150, and 45,298,000 pounds of zinc valued at $5,526,356. Gold production decreased 4 percent in quantity and value, silver was up less than half of one percent in quantity, but gained 12 percent in value, copper decreased 2 percent in quantity, but gained 26 percent in value, lead increased 2 percent in quantity and 37 percent in value, and zinc was lower by 22 percent in quantity and 25 percent in value.

The average prices used by the Bureau of Mines in calculating the gross values of the outputs of the metals were: Gold, $35.00 per fine ounce in 1946 and 1947; silver, $0.808 per fine ounce in 1946 and $0.905 in 1947; copper $0.162 per pound in 1946 and $0.209 in 1947; lead, $0.109 per pound in 1946 and $0.146 in 1947; and zinc, $0.122 per pound in 1946 and $0.117 in 1947. The average prices for the base metals include bonus payments made under the Premium Price Plan for copper, lead, and zinc. The total value for the five metals in 1947 was $30,404,175 compared with $27,026,416 in 1946, an increase of 12 percent.

Preliminary data for 1947 indicate that 95 percent of Nevada gold was produced at lode mines and 5 percent at placers compared with 84 and 16 percent, respectively, in 1946. Again in 1947 as in 1946 one-half of the State's total gold was derived from copper ores; nearly all copper ore was concentrated and the concentrates smelted. Gold ore, a large proportion of which was cyanided, yielded approximately one-fourth of the 1947 gold production compared with 30 percent in 1946. Most of the remaining gold in 1947 was derived from gold-silver ores and zinc-lead ores though substantial quantities came from lead, silver, and other ores. These figures reflect a decrease in gold production from gravels and precious-metal ores as well as a somewhat lower yield of by-product gold from base-metal ores.

Prepared by Alfred L. Ransome, San Francisco Office,
Metal Economics Branch, Economics and Statistics Division.

The Kennecott Copper Corporation (Nevada Mines Division), a copper mine operated in the Robinson district, White Pine County, was again Nevada's leading gold producers in 1947, accounting for roughly one-quarter of the State's gold output. Second place was held by the Consolidated Goldacres Co. Goldacres mine, Bullion district, Lander County, followed closely by the Consolidated Coppermines Corporation, also a copper producer in the Robinson district, White Pine County. These three companies supplied nearly two-thirds of Nevada's total gold in 1947. The Standard Cyaniding Co. operating the Standard mine, Echo district, Pershing County ranked fourth as a gold producer in 1947, displacing the Consolidated Chollar Gould & Savage Mining Co. operating the Overman open-pit mine, Comstock district, Storey County, which came fifth in 1947.

Other operations that produced over a thousand ounces of gold in 1947 included the Combined Metals Reduction Co. which derived its gold from argentiferous zinc-lead ores from a group of mines in the Pioche district, Lincoln County; the Copper Canyon Mining Co. operating the Copper Canyon copper mine, Battle Mountain district, Lander County; the Natomas Co. operating a drag line dredge at Greenan Placers, Battle Mountain district, Lander County, Grafe Dayton Dredging Co. from dragline dredging operations during the first quarter of 1947, Silver City district, Lyon County; and the Manhattan Gold Dredging Co. which operated its connected-bucket dredge in the Manhattan district, Nye County during the first quarter of 1947.

Between 75 and 80 percent of Nevada's silver in 1947 was recovered from base-metal ores. Somewhat more than one-third was derived from zinc-lead ore (compared with 40 percent in 1946), and smaller quantities came from copper, lead, zinc, zinc-copper, gold, silver, and gold-silver ores. The leading producers of silver from zinc-lead ore were the Combined Metals Reduction Co. (including the Raymond Ely West Mining Co.), Pioche district, Lincoln County; Prince Consolidated Mining Co. and Ely Valley Mine, both in the Pioche district, Lincoln County; Hamilton and Jacobson, Yellow Pine district, Clark County; and the Callahan Zinc-Lead Co., Mount Hope mine, Eureka district, Eureka County. The leading producers of silver from lead ore were the Salt Lake-Pioche Mining Co. (including lessees), Financier and Apex Mines, Pioche district, Lincoln County; McFarland & Hullinger, Cleveland mine, Delano district, Elko County; and the Alexander and Brooklyn Mines, Inc., Union district, Nye County. Copper ore shipped to a smelter from the Bristol Silver Mines Co., Jack Rabbit district, Lincoln County, and copper concentrates shipped to smelters from the Kennecott Copper Corporation (Nevada Mines Division) and the Consolidated Coppermines Corporation mines in the Robinson district, White Pine County, and the Copper Canyon Mining Co's. copper canyon operation, Battle Mountain district, Lander County, were important sources of silver in 1947. Gold-silver ore mined principally by the Consolidated Chollar Gould & Savage Mining Co., Overman mine, Comstock district Storey County, and silver-bearing dump material from the Alpha Rye Patch mine, Echo district, Pershing County, treated by the Standard Cyaniding Co., were also important sources of silver.

Nevada copper production in 1947 continued the decline in effect since the all-time record of 1942. Of the recoverable copper output approximately 98 percent came from the three leading producers in the order named, Kennecott Copper Corporation (Nevada Mines Division) which worked the Copper Flat open-pit mine and the Ruth mine, and the nearby Consolidated Coppermines Corporation, Robinson district, White Pine County, and the Mountain City Copper Co., property, Cope district, Elko County. Termination of the premium price plan June 30, 1947 had little or no effect on Nevada copper production, the only major copper producer which closed down during the year -- the Mountain City Copper Co. -- did so at the end of September reportedly from lack of ore.

The Pioche district, Lincoln County, produced half of the lead and more than

80 percent of the zinc in Nevada in 1947 according to preliminary data; all of the zinc and most of the lead was recovered from concentrates produced by the Combined Metals Reduction Co's Pioche mill. This mill operated on ore shipped to it by the company-operated Abe Lincoln, Amalgamated lease, Pan American Co. and Pan American lease properties, and the Raymond Ely West mine, the Prince Consolidated Mining Co's. Prince mine, and the Ely Valley Mine's Ely Valley mine. The Salt Lake-Pioche Mining Co., the only other large producer in the district, shipped direct to a smelter argentiferous lead ore, mined on company account and by lessees from the Apex and Financier mines.

Expiration of the Premium Price Plan had little apparent effect on lead or zinc production in the Pioche district, but did result in a diminished output from a number of smaller properties in other districts, particularly those producing zinc. This condition is evidenced by the sharp rise in the ratio of zinc output from the Pioche district compared with the State total from 70 percent in 1946 to more than 80 percent in 1947, there being little change in output from the Pioche district.

In addition to the Pioche district mines there were a number of other lead, zinc-lead, zinc, and zinc-copper mines active in 1947. The principal ones were: Bristol Silver Mines Co., Bristol Silver mine, Jack Rabbit district, Lincoln County; Callahan Zinc-Lead Co., Mount Hope mine, Eureka district, Eureka County (shut down March 10 caused by power plant fire; subsequently reopened); Hamilton & Jacobson properties, Yellow Pine district, Clark County: McFarland & Hullinger, Cleveland mine, Delano district, Elko County; Nevada Lead Zinc Co., Nevada Lead mine, Spruce Mountain district, Elko County; Grand Deposit Mining Co., Grand Deposit mine, Aurum district, White Pine County; and the Groom mine, Groom district, Lincoln County, operated by Dan Sheahan.

Mine production of gold, silver, copper, lead, and zinc in Nevada in 1947, by months, in terms of recovered metals

	Gold (Fine ounces)	Silver (Fine ounces)	Copper (Short tons)	Lead (Short tons)	Zinc (Short tons)
January........	8,170	110,600	3,330	550	2,070
February.......	7,210	97,700	4,000	520	1,850
March..........	6,370	86,900	4,100	580	1,480
April..........	6,610	97,700	4,050	550	1,420
May............	8,170	124,900	4,625	680	1,320
June...........	7,680	137,800	3,030	630	1,770
July...........	7,550	127,980	4,050	625	1,350
August.........	7,980	101,480	4,400	675	1,400
September......	7,810	91,640	4,170	560	1,420
October........	7,350	95,200	3,990	600	1,500
November.......	6,300	93,000	3,900	680	1,200
December.......	6,000	90,000	4,000	680	1,000
	87,200	1,254,900	47,645	7,330	17,780
Total, 1946	90,680	1,250,651	48,616	7,175	22,649

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

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J. A. KRUG, Secretary James Boyd, Director

For Release January 20, 1948.

MINERAL MARKET REPORTS
MMS NO. 1574.

METAL MINING IN TEXAS, 1947 -- PRELIMINARY ANNUAL FIGURES

In 1947 eight mines in Texas produced gold, silver, copper, lead and zinc having a total value of $60,582, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. Production in 1946 was valued at $56,950. Virtually all the gold, much of the silver, and the bulk of the lead produced from mines in Texas in 1947 came from two mines operated by R. I. Carr in Presidio County. The bulk of the silver was produced from the Presidio mine operated by A. O. Mayfield. Most of the copper was produced from the Hazel mine dump, in Culberson County, operated by M. F. Drunzer from January through June. All of the zinc was produced by the Clark Mining Co., operating the Bonanza mine and its gravity-concentration mill; operations ceased in April. The Marfa Mining Co., made one shipment of lead ore from the James claim in Presidio County in October. Small shipments of ore were made by L. Ellison & J. C. Moore and Geasling & Mayfield.

During 1947 mines in Texas yielded (in terms of recoverable metals) 60 fine ounces of gold, 21,182 fine ounces of silver, 12,000 pounds of copper, 204,000 pounds of lead, and 60,000 pounds of zinc, compared with 9 fine ounces of gold, 42,922 fine ounces of silver, 6,000 pounds of copper, 94,000 pounds of lead, and 88,000 pounds of zinc in 1946. The preliminary figures on 1947 mine output are based on 10 months' actual production plus an estimate of the output anticipated by operators in November and December.

At average prices used by the Bureau of Mines, as shown below, the calculated gross value of the output of these metals in 1947 was: Gold $2,100, silver $19,170, copper $2,508, lead $29,784, and zinc $7,020. In 1946 the values were: Gold $315, silver $34,681, copper $972, lead $10,246, and zinc $10,736. The price of gold, fixed by the United States Government, remained at $35 per fine ounce throughout 1947, and the price of domestic-mined silver was $0.905 a fine ounce (the average weighted yearly price per ounce in 1946 was $0.808). The average weighted yearly price per pound including bonus payments for over-quota production, of copper advanced from $0.162 in 1946 to $0.209 in 1947 and lead from $0.109 to $0.146, but zinc decreased from $0.122 in 1946 to $0.117 in 1947.

In 1947, two horizontal-retort zinc smelters and one electrolytic zinc smelter, one copper smelter, one lead smelter, and one copper refinery were in operation in Texas. The American Smelting & Refining Co., operated its copper and its lead smelters in El Paso throughout the year and began construction of a slag-fuming plant for the recovery of zinc from old slag dumps at the company El Paso smelters. The company horizontal-retort zinc smelter at Amarillo was operated continuously on a 48-hour cycle throughout the year; its electrolytic zinc smelter at Corpus Christi was operated continuously throughout the year.

Prepared by S. A. Gustavson, Denver Office, Metal Economics Branch, Economics and Statistics Division.

The American Zinc Co., of Illinois operated its gas-fired horizontal-retort zinc smelter at Dumas continuously on a 48-hour cycle and at about half capacity throughout the year.

The Phelps Dodge Corporation Nichols electrolytic copper refinery at El Paso continued to treat blister copper anodes cast at corporation smelters in Arizona; the plant was operated at maximum capacity throughout 1947.

Mine production of gold, silver, copper, lead, and zinc in Texas, 1947, by months, in terms of recoverable metals.

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January	2	126	2,000	4,000	.....
February	11	6,185	4,000	19,000	24,000
March	5	1,760	2,000	18,000	15,000
April	5	5,782	2,000	23,000	21,000
May	..	2,067	.....	.....	.....
June	..	1,754	.....	.....	.....
July	..	13	2,000	5,000	.....
August	10	643	.....	14,000	.....
September	1	50	.....	11,000	.....
October	9	582	.....	30,000	.....
November	7	1,560	.....	35,000	.....
December	10	660	.....	45,000	.....
Total: 1947	60	21,182	12,000	204,000	60,000
1946	9	42,922	6,000	94,000	88,000

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

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For release January 20, 1948.

MINERAL MARKET REPORT

MMS. NO. 1575.

METAL MINING IN CALIFORNIA, 1947 - PRELIMINARY ANNUAL FIGURES

Gold production in California in 1947 increased only 15 percent over 1946, and silver output was approximately one-fifth higher than that of the previous year, according to the San Francisco Office of the Bureau of Mines, United States Department of the Interior. Lead production increased to the highest point since 1917, but copper output was roughly half the production in 1946 and zinc output was considerably lower in 1947 than in the previous year.

California lode and placer mines in 1947 yielded (in terms of recoverable metals) 410,760 fine ounces of gold valued at $14,376,600 (356,824 ounces valued at $12,488,840 in 1946), 1,642,800 fine ounces of silver valued at $1,486,734 (1,342,651 ounces valued at $1,084,862 in 1946), 4,760,000 pounds of copper valued at $994,840 (8,480,000 pounds valued at $1,373,760 in 1946), 20,380,000 pounds of lead valued at $2,975,480 (19,846,000 pounds valued at $2,163,214 in 1946), and 10,600,000 pounds of zinc valued at $1,240,200 (13,754,000 pounds valued at $1,677,988 in 1946). These preliminary figures are based on 10 months actual mine production with estimates for November and December.

The average prices used by the Bureau of Mines in calculating the gross value of the outputs of the metals were: Gold $35.00 per fine ounce in 1946 and 1947; silver, $0.808 per fine ounce in 1946 and $0.905 in 1947; copper, $0.162 per pounds in 1946 and $0.209 in 1947; lead $0.109 per pound in 1946 and $0.146 in 1947; and zinc $0.122 per pound in 1946 and $0.117 in 1947. The basemetal prices are weighted yearly averages including premium price plan bonus payments. The total value of the five metals in 1947 was $21,073,854 compared with $18,788,664 in 1946, an increase of 12 percent owing almost entirely to the gain in gold output, the losses in copper and zinc output being offset by the gains in production and value of silver and lead.

Although complete data for classifying gold production are not available it appears that placer mines contributed approximately 78 percent of the 1947 output and lode mines 22 percent. Again, as in 1946, the major part of the placer production came from connected-bucket dredges.

Prepared by Alfred L. Ransome, San Francisco Office,
Metal Economics Branch, Economics and Statistics Division.

The Yuba Consolidated Gold Fields operated five dredges in the Yuba River district, Yuba County, during 1947, two in Butte County, and one in Siskiyou County which resumed operation in September following a shut down since April 1946. The Natomas Co. operated their entire fleet of seven dredges in the Folsom district, Sacramento County during 1947. The Gold Hill Dredging Co. operated two dredges on the Mokelumne River, Camanche district, San Joaquin County, and one dredge on the Feather River, Oroville district, Butte County. Connected-bucket dredges were operated also by the Merced Dredging Co. and the Snelling Gold Dredge Co., Snelling district, Merced County; Thurman & Wright, Cosumnes River district, and the Capital Dredging Co. and the Lancha Plana Gold Dredging Co., Folsom district, Sacramento County; Thurman Gold Dredging Co., Redding district, Shasta County; Yreka Gold Dredging Co., Klamath River district, and the French Gulch Dredging Co., Deadwood district, Siskiyou County; the La Grange district, Stanislaus County; and the Junction City Mining Co., Junction City district, Trinity County. An increasing number of placer operators used dragline equipment during 1947, but several did not produce throughout the year. Several hydraulic operations were active during 1947, and gold was produced from the Morris Ravine drift mine, Oroville district, Butte County. Gold continued to be recovered in relatively minor quantity as a byproduct by several gravel companies.

Gold production at lode mines remained about the same in 1947 as in 1946 and the general outlook for this class of gold mining was not a bright one. Not only did many former producers again postpone reopening but several, including the Argonaut Mining Co., Ltd., stopped maintenance work entirely at their mines with a view toward a permanent shutdown. Increasing costs of mining resulting in inability to operate profitably was the reason for such action. In 1946, lode gold derived from gold ores accounted for 92 percent of the total lode gold produced, and 8 percent was recovered from gold-silver ore and ores mined primarily for copper, lead, zinc, and other base metals. Preliminary figures indicate that the ratio was about the same in 1947. Nearly two-thirds of the gold from gold ore produced in California in 1947 was mined in the Grass Valley-Nevada City district, Nevada County, almost entirely by the Idaho Maryland Mines Corporation and the Empire Star Mines Co., Ltd., the latter company operated its mine at Grass Valley under a leasing system and accepted gold ore and precipitates for treatment at the company mill from other mines on a custom basis. In the Washington district of Nevada County the Ancho-Erie Mining Co. was a substantial producer during 1947. In the Mother Lode Counties, the larger shipments of gold derived from gold ore were made by the Mount Gaines Mining Co., Hunter Valley district, Mariposa County, and the Eagle Shawmut Mine, Mother Lode district, Tuolumne County. The Eagle Shawmut Mine was closed down during the latter part of the year and equipment was being sold. Burton Bros., Inc., cyanided gold ore from the Tropico mine, Mojave district, Kern County, and recovered a substantial quantity of gold. The Original Sixteen to One Mine, Inc., operated the Original Sixteen to One mine, Alleghany district, and Alfred L. Merritt operated the Brush Creek mine, Downieville district, Sierra County throughout the year. Of the mines that operated chiefly for base metal in 1947, only the Penn mine, Campo Seco district, Calaveras County, operated by the Shawmut Copper Mine Co., yielded more than 1,000 ounces of gold.

Three-fourths of the 1947 California silver production of 1,642,800 ounces was derived from argentiferous lead and zinc-lead ores. The principal producers from such ores were the Anaconda Copper Mining Co., operating the Darwin mines, Coso district, and the Shoshone mines (from July 1, 1947), Resting Springs district, Inyo County, and the Finley Co. which operated the Shoshone mines (Columbia No. 2) during the first half of 1947. Other large silver producers were: The Shawmut Copper Mine Co., Penn mine (closed down July 1947), Campo Seco district, Calaveras County (zinc ore); Frank W. Royer, Kelly mine, Randsburg district, San Bernardino County (gold-silver ore); Louis Warnken Jr. operating in the Calico district, San Bernardino County; and the Mountain Copper Co., Ltd., Hornet mine (closed down June 1947), Flat Creek district, Shasta County (zinc-copper ore). Much of the remainder of the silver produced in California during 1947 was derived from other base-metal ores.

The marked drop in California copper production from 8,480,000 pounds in 1946 to 4,760,000 pounds in 1947 was due to the closing of three major producers during the year, two of which ceased operations as the direct result of the termination of the Premium Price Plan for copper, lead, and zinc on June 30, 1947. The Pacific Mining Co., the largest copper producer in the State in 1947 accounted for one-third of the State's copper production. The company operated the Newton mine (under lease from the Winston Copper Co.), Ione district, Amador County, until the end of August when operations ceased because of inability to mine profitably without the benefit of a premium price for copper. The Shawmut Copper Mine Co. operating the Penn mine, Campo Seco district, Calaveras County, recovered copper from copper concentrates derived from zinc ore and ranked second in production of copper in the State. Mining operations at the Penn mine ceased in July 1947 as a direct result of the termination of the Premium Price Plan, and production during subsequent months was from cleanup operations. The Mountain Copper Co., Ltd., was third in production of copper in California in 1947 from zinc-copper ore mined from the Hornet mine, Flat Creek district, Shasta County. Shipments of copper and zinc concentrates were made during the first half of 1947. On June 30 all zinc-copper operations ceased at the property as the result of lower grade of ore and increasing costs; the shutdown was planned in advance of the expiration of the Premium Price Plan and therefore cannot be attributed directly to that action.

The Anaconda Copper Mining Co. produced nearly two-thirds of the 20,380,000-pound lead output of California in 1947 from the Darwin Mines, Coso district, Inyo County. The greater part of the lead was recovered from direct smelting ore, the balance coming from a flotation lead concentrate produced. Shoshone Mines (Columbia No. 2), Resting Springs district, Inyo County, operated by the Finley Co. during the first half of 1947, and by the Anaconda Copper Mining Co. during the last six months, again ranked second in output. The Louis Warnken Jr. operation in the Calico district, San Bernardino County was third. A substantial quantity of lead was recovered by L. D. Foreman from various operations in Inyo County. Because of the preponderance of production of lead from two mines that operated throughout the year, the expiration of the Premium Price Plan on June 30, 1947 had no apparent effect on lead production. However a number of smaller producers, particularly those recovering lead from zinc-lead ore did shut down as a direct result of the Plan's termination, and the total lead output might otherwise have been somewhat higher.

In 1947, as in 1946, the largest producer of zinc in California was the Shawmut Copper Mine Co., operator of the Penn mine, Campo Seco district, Calaveras County. Nearly half the State's output of zinc came from this property and the ratio would have been considerably higher had not the property shut down in July as a direct result of the expiration of the Premium Price Plan. Production of zinc concentrate by the Mountain Copper Co., Ltd., from ore of the Mattie ore body in the Hornet mine, Flat Creek district, Shasta County, continued at a steady rate during the first half of 1947 until the operation closed down June 30. Despite this planned action because of lower grade ore and rising costs, the operation ranked second as a zinc producer in the State. Zinc was also recovered from zinc-lead ore shipped for direct smelting by the Anaconda Copper Mining Co. from their Darwin Mines throughout the year, and a lesser quantity was recovered from lead concentrate produced from the company flotaion mill on the property. The Crystal Cave Mining Co., operating the Carbonate King mine, Clark Mountain district, San Bernardino County, during the first half of 1947, recovered a substantial quantity of zinc from zinc ore shipped to a smelter. Production of zinc was the hardest hit of the nonferrous metal as a result of termination of the Premium Price Plan on June 30, 1947, largely because the price differential between that available on the open market and under the Plan was great enough so that the lack of a premium eliminated any possible profit margin on all but a few mines.

Mine production of gold, silver, copper, lead, and zinc in California
by months, in terms of recoverable metals

	Gold (Fine ounces)	Silver (Fine ounces)	Copper (Short tons)	Lead (Short tons)	Zinc (Short tons)
January----------	33,300	191,300	250	980	440
February---------	32,400	185,600	210	1,090	510
March------------	31,300	168,700	240	1,410	660
April------------	40,500	172,400	350	1,300	890
May--------------	38,600	151,300	330	980	780
June-------------	34,300	150,700	300	850	720
July-------------	35,860	95,100	270	620	490
August-----------	33,160	102,300	260	640	310
September--------	33,340	117,800	110	760	300
October----------	33,100	85,600	40	510	100
November---------	32,500	117,000	10	550	75
December---------	32,400	105,000	10	500	25
	410,760	1,642,800	2,380	10,190	5,300
Total, 1946----	356,824	1,342,651	4,240	9,923	6,877

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

For release January 30, 1948

MINERAL MARKET REPORT NO. 1576
(Replaces November and December
Monthly reports 78 and 79)

MINE PRODUCTION OF COPPER IN THE UNITED STATES IN 1947 - PRELIMINARY ANNUAL FIGURES

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The largest single factor in the gain of 39 percent in mine output of recoverable copper in 1947 was the absence of the general labor strike problems that plagued 1946, according to the Bureau of Mines, United States Department of the Interior. In 1946 a more than 5-month shut-down of the chief copper-producing mine, a more than 4 month's closure of the largest group of smelters and refineries, and several other large-scale strikes thwarted efforts to obtain maximum output. The absence of strikes in 1947, a general improvement in overall mine labor supply and the highest annual price since 1918 combined to increase output from domestic mines. The end of the Premium Price Plan on June 30, 1947 had little effect on production because after the end of most price controls in November 1946 the copper price rose to a point where only a small tonnage of copper continued to be entitled to premium payments. The actual effects of the termination of the Plan on copper output are not possible to guage accurately at this time. The only noteworthy closures affecting copper output, known to have been caused by the Plan's end, were the North Butte in Montana, the Newton and Penn mines in California, Copper Canyon in Nevada, and National Tunnel & Mines in Utah.

Most of the chief copper-producing States contributed to the larger production in 1947, Utah, New Mexico, Arizona and Michigan showing gains of 133, 27, 26, and 10 percent, respectively. Montana's output, on the other hand, declined for the fifth successive year, falling 1 percent in 1947, and Nevada dropped 2 percent, against the general trend. Of the larger copper-producing areas that had gains only New Mexico was unaffected by labor strikes at important copper mines in either year. Utah, where the Utah Copper mine was closed from January 21 to June 24 in 1946, had continuous operation in 1947 except for the strike of the Bingham and Garfield Railroad from October 22 to November 5. Strikes extending more than three months at several of the chief copper mines in Arizona in 1946 were not repeated in 1947, and Michigan did not again experience a month-long copper mine closure because of the coal strike. Montana had a short-lived strike in 1946 and none in 1947, but production declined, nonetheless, mainly because of a drop in output of metal from copper ore and waste materials of the Anaconda Copper Mining Co. Nevada, like New Mexico, was unaffected by strikes in either 1946 or 1947, but in 1947 witnessed a continuation of the decline in progress since the peak output was established in 1942.

Following the removal of ceiling price limitations on copper in November 1946, the price advanced immediately and thereafter for several months was subject to noteworthy changes accompanied by confusion in the industry, owing to varied causes. Several sharp advances in maximum prices of the British Ministry of Supply kept that price well above the United States price. The average price for electrolytic copper

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Prepared by Helena M. Meyer, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

in the domestic market was 14.150 cents a pound f.o.b. refinery in October 1946, before ceilings were removed, and the export price averaged 17.094 cents. In January the prices were 19.27 and 19.926 cents, respectively; in May, 22.105 and 23.591 cents (the highest domestic monthly average since 1919) and after May settled at close to 21.2 cents in the domestic and slightly higher in the export market. Throughout the year export prices were above those in the domestic market; in April the difference exceeded 2 cents a pound. The legislative removal of the excise tax on copper from April 30, 1947, to March 31, 1949, added to the confused situation in the domestic market and for a brief time foreign copper was sold in the domestic market at $2\frac{1}{2}$ cents more than domestic copper.

This report which summarizes mine output for 1947 is part of the regular monthly copper mine production series. As preliminary figures for November and estimates for December are included, the report serves for both these months and the next issue will be for January 1948. The following table and State reviews for 1947 were obtained from current preliminary reports of the western field offices of the Bureau of Mines, a procedure followed in the preparation of all the reports in the series. The figures are given in terms of recoverable copper content of ores and concentrates.

Arizona. - Copper output rose 26 percent in 1947 owing chiefly to the absence of labor strikes that had a depressing effect on production in 1946. Output was at about the 1926 rate and except for 1929, 1943, 1942, 1918 and possibly 1928 and 1926, was higher than ever before. Nearly all of the principal producers of copper reported substantial increases in output. The Morenci mine continued by far the largest producer of copper in Arizona and in the United States stood second only to the Utah Copper mine. In Arizona it was followed by the New Cornelia, Inspiration, Miami, Castle Dome, Kennecott (Ray mines), Copper Queen, Magma, United Verde, and Bagdad properties. These 10 mines produced about 359,600 tons, compared with 282,229 tons for the same mines in 1946, or about 98 percent of the State totals in both years. The chief copper-producing districts of the State, in order of output in 1947, with 1946 production in parentheses, were as follows: Copper Mountain (Morenci) district, 148,500 short tons (95,366); Globe (Inspiration-Miami) district, 89,750 (88,556); Ajo district, 48,500 (45,233); Mineral Creek (Ray), 18,000 (16,355); Warren (Bisbee), 16,850 (4,605); Pioneer (Superior), 15,250 (12,244); Verde, 14,350 (16,176); and Eureka (Bagdad), 6,425 (5,932). The Verde district was the only one of the foregoing to register a decline. The total copper ore produced in the State rose from 30,386,149 tons in 1946 to about 37,700,000 tons in 1947.

California. - The marked drop in copper production from 4,240 tons in 1946 to 2,380 tons in 1947 was due to the closing of three major producers during the year, two of which ceased operations as the direct result of the termination of the Premium Price Plan on June 30, 1947. California, thus, was affected more drastically by the end of premiums than any other copper-producing area. The Pacific Mining Co operating the Newton mine, Ione district, Amador County, and largest producer in the State in 1947, closed at the end of August because of the end of premium payments. The Shawmut Copper Mine Co., operating the Penn mine, Campo Seco district, Calaveras County, recovered copper from copper concentrates derived from zinc ore and ranked second in production of copper in the State. Mining operations terminated in July, directly as a result of the end of the Plan, and production in subsequent months was from cleanup operations. The Mountain Copper Co., Ltd., was third in copper production, producing the metal from zinc-copper ore mined from the Hornet mine, Flat Creek district, Shasta County. On June 30 all zinc-copper operations ceased at the property as a result of lower grade of ore and increasing costs; the shutdown was planned in advance of the expiration of the premium payments and cannot be attributed to that action.

Central States. - Mines in Michigan produced 23,800 tons of copper in 1947, an increase of 10 percent over the 21,663 tons in 1946. The producing companies were the Calumet and Hecla Consolidated Copper Co., operating the Ahmeek stamp mill, 2 reclamation plants, 1 smelter, and 7 mines in the Upper Peninsula area; the Copper Range Co., which treated clean-up material and old tailings from its Champion mine in Houghton County and ore produced in development at the White Pine property in Ontonagon County; the Isle Royale Copper Co., operating the Isle Royale mine and stamp mill near Houghton; and the Quincy Mining Co., operating its reclamation plant at Mason on Torch Lake. Missouri produced about 2,000 tons of copper in 1947 compared with 1,857 in 1946.

Colorado. - Copper production in Colorado - chiefly as a byproduct of lead and zinc mining was 22 percent greater in 1947 than in 1946. San Miguel County was the largest source of copper in 1947 followed by San Juan and Eagle Counties. Together these counties recovered less than 1,400 tons.

Eastern States. - Copper production in the Eastern States as a whole was little changed from 1946. The Tennessee Copper Co., operating in the Ducktown-Copperhill district of Tennessee, continued to be the principal producer. In Pennsylvania the Bethlehem Steel Co. recovered copper as a byproduct from iron (magnetite-pyrite-chalcopyrite) ore from the Cornwall mine in Lancaster County. Vermont's copper output came again from the Elizabeth mine of the Vermont Copper Co. in Orange County; production was less than in 1946. The Toncrae Mining Co., which constructed a plant to heap-roast and leach ore and precipitate copper at the Toncrae mine, Floyd County, Virginia, shipped a small tonnage of cement copper in 1947.

Idaho. - Copper was produced in Idaho chiefly as a byproduct of the treatment of silver ore and zinc-lead ore and old tailings from mines in the Coeur d'Alene region. Output rose to 1,465 tons in 1947, or 41 percent.

Montana. - The drop in copper production in Montana in 1947 was against the trend in almost all of the other chief copper-producing areas. Production in 1946 was adversely affected by a brief labor strike but the drop of 34 percent in that year far exceeded the effects of the strike. The small additional drop of 1 percent in 1947, the fifth successive annual decline, carried production to 43 percent below the annual average for the five-year period 1935-39; the 1947 total was the smallest since 1934. The decrease was due mainly to a drop in output of metal from copper ore and waste materials of the Anaconda Copper Mining Co. at Butte and Anaconda. The Anaconda Copper Mining Co. produced 94 percent of the State total and the North Butte mine furnished over two-thirds of the remainder. The North Butte mine closed in August because of the termination of the Premium Price Plan, but North Butte's output of copper in 1947 was nearly double that in 1946.

Nevada. - The decline in copper production, in progress since the all-time peak of 83,663 tons was established in 1942, continued in 1947; output fell 2 percent contrasted with the overall gain of 39 percent for the United States as a whole. Of the copper recovered in 1947, 98 percent came from the three leading producers in the order named, Kennecott Copper Corp. (Nevada Mines Division) which worked the Copper Flat open-pit and the Ruth mine, and the nearby Consolidated Coppermines Corp., Robinson district, White Pine County, and the Mountain City Copper Co. property, Cope district, Elko County. The Mountain City Copper Co. closed at the end of September, reportedly from lack of ore.

New Mexico. - Copper production in New Mexico was unimpeded by labor strikes in either 1946 or 1947 but output rose 27 percent in 1947, nonetheless, in keeping with the general movement in the United States chiefly attributable to the end of the 1946 strike wave. The Chino Mines Division of the Kennecott Copper Corp., by far the outstanding producer, operated its open-pit mine at Santa Rita in the Central district and its flotation mill and reverberatory copper smelter at Hurley at or near capacity rates throughout 1947. Other producers included the Banner Mining Co., Lordsburg district, and the Burro Mountain property of the Phelps Dodge Corp., Burro Mountain district, the latter of which continued to recover copper by precipitation from mine waters pumped through old workings.

Utah. - Recovery from the more than 5-month's labor strike in the first half of 1946 carried Utah's production up 133 percent in 1947, despite a Bingham and Garfield Railroad strike from October 22 to November 5. The 1947 output duplicated that of 1941, which was the all-time peak by a substantial margin until that time; the 1947 total was smaller only than the annual outputs for 1942-44. The railroad strike is estimated to have curtailed Utah's 1947 output by 13,000 tons. The Utah Copper mine is the largest copper-producing property in the United States and produced all but a relatively small part of Utah's copper; it accounted for more than 30 percent of the total for the United States. Other Utah mines that yielded over 500 tons were the United States and Lark, the National Tunnel and Mines property (closed in August), and the Columbia group of the Ohio Copper Co., all in the West Mountain (Bingham) district. The West Mountain district produced 262,500 tons of copper in 1947 compared with 112,083 tons in 1946. Copper ore and old tailings treated in Utah in 1947 totaled about 29,100,000 tons, compared with 12,471,208 tons in 1946.

Washington. - Yield of copper in Washington in 1947, was the smallest since 1937. Output during the year was almost at a standstill until August, when the Howe Sound Co. resumed production of zinc-copper ore at its Holden mine, Chelan County. This mine was closed on November 9, 1946 and all men were concentrated on a development campaign aimed at accomplishing a maximum of work in a minimum of time. No other properties contributed important quantities of the metal in 1947.

Mine production of recoverable copper in the United States
in 1947, by months 1/, in short tons

Region and State	January	February	March	April	May	June	July	August	September	October	November	December	Total
Eastern States.	1,124	937	1,106	1,121	1,085	943	1,020	1,079	1,027	1,071	1,045	1,042	12,600
Central States.	1,908	1,974	2,139	2,200	2,109	2,240	2,283	2,233	2,358	2,466	1,950	1,940	25,800
Western States:													
Arizona......	30,700	29,450	32,005	30,225	31,385	29,725	31,970	29,820	29,465	30,970	28,885	30,000	364,500
California...	250	210	240	350	330	300	270	260	110	40	10	10	2,380
Colorado.....	136	134	155	168	191	221	145	205	192	235	190	175	2,147
Idaho........	95	105	122	137	113	118	130	125	115	145	130	125	1,465
Montana......	5,400	5,040	5,640	5,200	4,735	4,460	4,530	4,030	3,900	4,690	5,100	4,900	57,625
Nevada.......	3,330	4,000	4,100	4,050	4,625	3,030	4,050	4,400	4,170	3,990	3,900	4,000	47,645
New Mexico...	4,614	4,732	4,811	5,471	5,402	5,455	5,400	5,922	5,823	5,555	5,435	5,200	63,320
Oregon.......	-	-	-	1	1	1	1	4	-	-	-	-	8
Texas........	1	2	1	1	-	-	1	-	-	-	-	-	6
Utah.........	22,485	21,800	24,250	23,470	25,090	23,675	23,485	23,580	23,145	16,460	16,155	22,500	266,095
Washington...	1	1	1	1	1	1	1	356	430	463	464	465	2,185
	67,012	65,474	71,325	69,074	71,878	66,985	69,983	68,702	67,350	62,548	60,269	67,375	807,976
Alaska 2/......	-	-	-	-	-	-	-	-	3	4	2	4	13
Total United States	70,044	68,385	74,570	72,395	75,072	70,169	73,286	72,014	70,738	66,089	63,266	70,361	846,389

1/ Revised figures.
2/ Alaska monthly totals based on mint and smelter receipts.

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MINERAL INDUSTRY SURVEYS
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
J. A. KRUG, Secretary JAMES BOYD, Director

For release January 30, 1948.

MINERAL MARKET REPORT
MMS NO. 1577
(Replaces November and
December monthly reports
numbers 43 and 44)

MINE PRODUCTION OF GOLD IN THE UNITED STATES IN 1947
PRELIMINARY FIGURES

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Recovery of gold mining in the United States continued in 1947 when the output of 2,090,013 fine ounces was 33 percent above 1946 and 119 higher than the recent low for 1945, according to the Bureau of Mines, United States Department of the Interior. The chief reason for the 1947 rise was the resumption of almost continuous operations at the world's largest copper-producing mine, the Utah Copper mine of the Kennecott Copper Co. which produces byproduct gold. The gain in output in Utah caused that State to resume its wartime position as the leading gold-mining State in the United States, according to preliminary totals. A more than 5-months' strike at the aforementioned mine in 1946 contrasted with one of only 2 weeks' duration, from October 22 to November 5, in 1947, at the railroad that services the Utah mine. Utah's gold production rose nearly 235,000 ounces or 131 percent. California and South Dakota which ranked second and third in 1947 had increases of 15 and 30 percent, respectively. Availability of only 60 to 65 percent of the underground personnel necessary for full-scale operation impeded further expansion in South Dakota production. The labor supply, however, is reported to have improved in some areas in 1947. With the exception of Nevada, which registered a 4-percent drop, no State accounting for as much as 50,000 ounces of gold registered a decline in output. Alaska, ranking fourth in production, Colorado fifth, and Arizona, sixth, gained 33, 17, and 18 percent, respectively, in 1947. Of the six leading gold-producing States four had increases ranging from 50,000 to 235,000 ounces.

The price of gold remained unchanged at the Treasury buying rate of $35 an ounce, whereas the prices of other metals rose substantially in most instances.

This report which summarizes mine output for 1947 is part of the regular monthly gold mine production series. As preliminary figures for November and estimates for December are included, the report serves for both these months and the next issue will be for January 1948. The following table and State reviews for 1947 were obtained from current preliminary reports of the western field offices of the Bureau of Mines, a procedure followed in the preparation of all the reports in the series. The figures are given in terms of recoverable gold content of ores and concentrates.

Alaska.--After Utah, California and South Dakota, Alaska was the most important gold-producing area in the United States in 1947, production rising 33 percent in

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Prepared by Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

that year. Among the more important producers of gold from placer operations were: The United States Smelting Refining and Mining Co., which operated five connected-bucket dredges in the Fairbanks district; the New York Alaska Gold Dredging Co., operating a dredge in the Tuluksak-Aniak district; Yukon Placer Mining Co., operating a bulldozer and sluice box equipment on Walker's Fork Creek, Fortymile district; Alluvial Golds, Inc., operating a connected-bucket dredge on Woodchopper Creek, Circle district; Gold Placers, Inc., operating a dredge on Coal Creek, Circle district; Arctic Circle Exploration Co., operating a dredge on Candle Creek in the Fairhaven district; Cripple Creek Mining Co., operating in the Innoko district; Alder Creek Mining Co., operating a dragline, Bulldozer, and Hydraulic giant combination on Fairbanks Creek, Fairbanks district; Wade Creek Dredging Co., operating bulldozer and sluice box equipment on Jack Wade Creek, Fortymile district; and C. J. Berry Dredging Co., operating a dredge in the Circle district.

Lode gold mining remained at a low point in 1947. The difficulty of obtaining equipment and the mounting cost of mining, including labor and supplies, were the primary reasons for the relative inactivity in contrast to placer operations.

Arizona.-About 78 percent of Arizona's output in 1947 was recovered from copper ore mined at Bisbee, Ajo, Jerome, Superior, Morenci and Miami. The remainder came largely from zinc-lead ore from a mine in the Big Bug district. The largest producers were the New Cornelia, Copper Queen, Iron King, Magna, United Verde and Morenci mines; these six properties produced 87 percent of the State total. The principal gold-producing districts in the State were the Ajo (30,300 ounces), the Warren (Bisbee) (19,250 ounces), the Big Bug (9,750 ounces), the Pioneer (Superior) (9,250 ounces), the Verde (6,750 ounces), and the Copper Mountain (Morenci) (6,400 ounces).

California.-The sharp gain in output of gold in Utah caused that State to resume its wartime position as the leading gold-producing area in the United States, and California, which had a percentage gain of less than one-half the average for the United States, dropped to second place. Production in 1947 was the largest since 1942, but amounted to only 48 percent of the total for that year. Partial data for classifying production indicated that placer mines contributed 78 percent of the 1947 total and lode mines 22 percent. Most of the placer production came again from connected-bucket dredges.

The Yuba Consolidated Gold Fields operated five dredges in the Yuba River district, Yuba County, during 1947, two in Butte County, and one in Siskiyou County which resumed operation in September following a shut down since April 1946. The Natomas Co. operated their entire fleet of seven dredges in the Folsom district, Sacramento County during 1947. The Gold Hill Dredging Co. operated two dredges on the Mokelumne River, Camanche district, San Joaquin County, and one dredge on the Feather River, Oroville district, Butte County, Connected-bucket dredges were operated also by the Merced Dredging Co. and the Snelling Gold Dredge Co., Snelling district, Merced County; Thurman & Wright, Cosumnes River district, and the Capital Dredging Co. and the Lancha Plana Gold Dredging Co., Folsom district, Sacramento County; Thurman Gold Dredging Co., Redding district, Shasta County; Yreka Gold Dredging Co., Klamath River district, and the French Gulch Dredging Co., Deadwood district, Siskiyou County; the La Grange Gold Dredging Co., and the Tuolumne Gold Dredging Co., La Grange district, Stanislaus County; and the Junction City Mining Co., Junction City district, Trinity County. An increasing number of placer operators used dragline equipment during 1947, but several failed to produce throughout the year. Several hydraulic operations were active during 1947, and gold was produced from the Morris Ravine drift mine, Oroville district, Butte County. Gold continued to be recovered in relatively minor quantity as a byproduct by several gravel companies.

Gold production at lode mines remained about the same in 1947 as in 1946 and the general outlook for this class of gold mining was not a bright one. Not only did many former producers fail to reopen but several, including the Argonaut Mining Co., Ltd., stopped maintenance work entirely at their mines with a view toward a permanent shutdown. Increasing costs of mining resulting in inability to operate profitably was the reason for such action. In 1946, lode gold derived from gold ores accounted for 92 percent of the total lode gold produced, and 8 percent was recovered from gold-silver ore and ores mined primarily for copper, lead, zinc, and other base metals. Preliminary figures indicate that the ratio was about the same in 1947. Nearly two-thirds of the gold from gold ore produced in California in 1947 was mined in the Grass Valley-Nevada City district, Nevada County, almost entirely by the Idaho Maryland Mines Corporation and the Empire Star Mines Co., Ltd., the latter company operated its mine at Grass Valley under a leasing system and accepted gold ore and precipitates for treatment at the company mill from other mines on a custom basis. In the Washington district of Nevada County the Ancho-Erie Mining Co. was a substantial producer during 1947. In the Mother Lode Counties, the larger shipments of gold derived from gold ore were made by the Mount Gaines Mining Co., Hunter Valley district, Mariposa County, and the Eagle Shawmut Mine, Mother Lode district, Tuolumne County. The Eagle Shawmut mine was closed down permanently during the latter part of the year and equipment was being sold. Burton Bros., Inc., cyanided gold ore from the Tropico mine, Mojave district, Kern County, and recovered a substantial quantity of gold. The Original Sixteen to One Mine, Inc., operated the Original Sixteen to One mine, Alleghany district, and Alfred L. Merritt operated the Brush Creek mine, Downieville district, Sierra County throughout the year. Of the mines that operated chiefly for base metal in 1947, only the Penn mine, Campo Seco district, Calaveras County, operated by the Shawmut Copper Mine Co., yielded more than 1,000 ounces of gold.

Colorado.-Gold production rose 17 percent over 1946, with output reaching a peak in June and July. In the last part of the year several placer operations closed because of high labor and material costs, resulting in a decline in production in the last four months, partially offset by gains in Teller County. Mines in the Cripple Creek district, Teller County, continued to be the major source of Colorado gold, but output therefrom remained less than one-half of the output for 1941. Labor continued insufficient and over three-fourths of the ore treated from the district was from dumps. The bulk of the district's output was recovered from mines or dumps operated by the Golden Cycle Corp., the Portland and Vindicator mines operated by the United Gold Mines Co., the Stratton Estate group operated by lessees, and the Cresson mine operated by the Cresson Consolidated Gold Mining & Milling Co. San Miguel County was second to Teller in importance in 1947 followed by San Juan, Lake and Park. In San Miguel County production came from Telluride Mines, Inc., the Idararo Mining Co., Alta Mines, Inc., and the Silver Bell Mines Co., among others, whereas chief producers in San Juan County were the Shenandoah-Dives Mining Co., Denver Equipment Co., Highland Mary Mines, Inc., Lead Carbonate Mines and the United States Coal Corp. (name changed to United States Oil & Development Co. after August).

Idaho.- Gold production rose 51 percent in 1947, continued improvement being noted at both lode and placer properties. The 1947 gain resulted mainly from the marked increase in output of gold-silver-antimony ore from the Yellow Pine mine at Stibnite in Valley County and to a greater production of gold from dredging operations in the Gibbonsville and Kirtley Creek districts in Lemhi County and the Ten Mile (Golden) and Elk City districts in Idaho County. About 64 percent of the gold was recovered from the aforementioned Yellow Pine mine at Stibnite, gold ore from the Boise-Rochester-Monarch (Talache Mines, Inc.) property at Atlanta, zinc-lead ore from the Triumph property near Hailey, and zinc-lead ore from various mines in the Coeur d' Alene region. Most of the remainder was recovered from either bucket or dragline dredging in the Boise Basin, Gibbonsville, Yankee Fork, Kirtley Creek, Elk City, Ten Mile (Golden), and Hoodoo districts. The output of gold from lode mines was about 44,600 ounces in 1947 (22,852 in 1946) and that from placers was 20,500 (20,123).

Montana.- Gold output in Montana rose 23 percent in 1947 and was the largest since 1942. Production from base-metal ores increased greatly while that from placers and siliceous ores gained moderately. Gold production by the Anaconda Copper Mining Co. from company copper ore and waste materials declined slightly but the yield from zinc-lead mines and dumps was nearly 25 times greater. The Jardine Mining Co. and the Rogers Gold Mining Co. held close to their 1946 levels; output by Porter Bros. increased slightly, but the Ruby Gulch Mining Co. nearly doubled its output. Small losses were reported at most other gold-producing properties. Returning to important gold production after being idle throughout 1946 were the Perry Schroeder dredge near Helena and the Granite-Bimetallic tailings operation at Philipsburg.

Nevada.- Nevada was the most important gold-producer to register a decline in 1947 - 4 percent; only two other States both with smaller outputs, Washington and New Mexico, had declines in that year. Preliminary data indicate that 95 percent of Nevada's gold in 1947 was produced at lode mines and 5 percent at placers, compared with 84 and 16 percent, respectively, in 1946. Again in 1947, as in 1946, one-half of the State's total gold was derived from copper ores. Gold ores yielded about one-fourth compared with 30 percent in 1946, and most of the remainder was from gold-silver ores and zinc-lead ores.

The Kennecott Copper Corp. (Nevada Mines Branch), a copper mine in the Robinson district, White Pine County, was again Nevada's leading gold producer, accounting for roughly one-quarter of the State total. Second place was held by the Consolidated Goldacres Co., Goldacres mine, Bullion district, Lander County, followed closely by the Consolidated Coppermines Corp., also a copper producer in the Robinson district. These three companies furnished nearly two-thirds of Nevada's gold.

Oregon.- Gold production of 18,780 ounces in 1947 was 7 percent higher than in 1946 but continued far short of the all-time high record output of 113,402 ounces in 1940. The greater proportion of production came from placers, principally from two connected-bucket dredges and an increasing number of dragline dredges. The principal gold producer in 1947 was the Sumpter Valley Dredging Co. which operated a connected-bucket dredge in the Sumpter district, Baker County. Porter and Co. operated a connected-bucket dredge in the Granite district, Grant County, and ranked second in output of gold in 1947.

South Dakota.- South Dakota ranked third in gold production in 1947. A shortage of underground workers in 1947, only 60 to 65 percent of that required for full-scale operations, was reported by the Homestake Mining Co. and the Bald Mountain Mining Co., chief producers of gold and silver in the State. The Homestake mine at Lead produced about 392,400 ounces of gold and the Bald Mountain mine at Trojan, 13,893 ounces.

Utah.- The gain of 131 percent in gold production in Utah in 1947 resulted in a new production peak for the State, 6 percent above the former high record for 1942. The 235,000-ounce rise alone exceeded output in all but three other areas. The great improvement (mentioned in the opening section of this report) in the management-labor situation at the Utah Copper mine, chief gold producer in Utah, not only was the principal reason for Utah's showing but was the principal cause of the increase for the United States as a whole. Straight gold mining showed little improvement in 1947, and base-metal ores continued to supply most of the State gold - copper ore, 88 percent; zinc-lead ore, 8 percent; and other base metal ores, 1 percent, leaving only 3 percent contributed by gold and silver ores. The West Mountain (Bingham) district produced 381,000 ounces (140,877 in 1946); the Park City region, 16,270 (16,956); and the Tintic, 13,325 (17,799). The Utah Copper mine, as already stated, was the outstanding gold producer, followed by the United States & Lark group (zinc-lead ore and gold-silver ore) at Bingham; New Park property (zinc-lead ore and gold ore) in the Park City region; Tintic Bullion mine (gold ore), Chief Consolidated property (zinc-lead ore, lead ore, and silver ore), and Eureka Lily mine (gold-silver ore) all in the Tintic district; National Tunnel & Mines Co. (copper ore and zinc-lead ore) in the West Mountain (Bingham) district; Calumet mine (zinc-lead ore) in the Rush Valley district; and the Eagle and Blue Bell mine (gold-silver ore) in the Tintic district. These 9 properties produced over 98 percent of the State gold in 1947.

Washington.- The sharp decline in output of gold in 1947 was due largely to the suspension of production November 9, 1946, at the Holden mine, Chelan County, to develop ore; production was resumed in August 1947. The 1947 output was the State's lowest since 1936. The Knob Hill mine in Ferry County increased its gold production slightly and moved into first place among State gold producers, followed by the Holden mine and the Aurum group (Ferry County). These three mines produced 97 percent of the total for Washington. The output from placer mines was small.

Mine production of recoverable gold in the United States in 1947, by months 1/, in fine ounces

Region and State	January	February	March	April	May	June	July	August	September	October	November	December	Total
Eastern States...	136	113	110	122	105	139	161	167	146	152	142	152	1,645
Central States...	-	-	-	-	-	-	-	-	-	-	-	-	-
Western States:													
Arizona.........	7,300	6,845	8,245	8,100	8,325	8,310	7,670	7,100	7,355	7,300	8,300	7,650	93,000
California......	33,300	32,400	31,300	40,500	38,600	34,300	35,860	33,160	33,340	33,100	32,500	32,400	410,760
Colorado........	11,475	12,008	13,050	14,615	13,550	15,290	15,164	13,780	14,151	14,882	14,260	14,030	166,255
Idaho...........	2,910	2,650	4,170	5,740	6,070	6,825	7,160	6,560	5,960	6,400	5,600	5,055	65,100
Montana.........	5,440	5,270	6,833	7,887	9,025	7,405	7,100	7,985	7,880	7,400	7,178	7,000	86,408
Nevada..........	8,170	7,210	6,370	6,610	8,170	7,680	7,550	7,980	7,810	7,350	6,300	6,000	87,200
New Mexico......	210	230	220	220	240	245	300	300	280	270	250	235	3,000
Oregon..........	610	500	1,120	1,230	1,680	1,960	2,180	2,570	1,710	1,700	1,720	1,800	18,780
South Dakota....	36,076	33,040	34,039	38,566	31,806	30,162	33,971	32,384	39,867	35,537	26,430	33,987	406,365
Texas...........	2	11	5	5	-	-	--	10	1	9	7	10	60
Utah............	31,675	31,125	33,970	36,530	39,370	36,620	37,474	39,825	37,954	25,400	28,150	35,000	413,093
Washington......	1,456	1,608	2,379	1,762	2,088	1,800	2,067	4,220	4,250	4,300	4,250	4,320	34,500
Wyoming.........	-	40	96	81	82	212	296	321	428	-	-	-	1,556
	138,624	132,937	141,794	161,846	159,006	150,809	156,792	156,695	160,986	144,148	134,945	147,487	1,786,069
Alaska 2/........	41,394	946	834	352	2,242	17,304	44,215	47,776	34,440	72,796	30,000	10,000	302,299
Total United States..	180,154	133,996	142,738	162,320	161,353	168,252	201,168	204,638	195,572	217,096	165,087	157,639	2,090,013

1/ Revised figures.

2/ Alaska monthly totals based on mint and smelter receipts.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary   JAMES BOYD, Director

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MINERAL MARKET REPORT NO. 1578
(Replaces November and December
monthly reports 43 and 44)

MINE PRODUCTION OF SILVER IN THE UNITED STATES IN 1947
PRELIMINARY ANNUAL FIGURES

Production of recoverable silver by mines in the United States gained 49 percent in 1947 and returned to about the 1944 level, according to the Bureau of Mines, United States Department of the Interior. This showing is less impressive, however, in view of the fact that 1946 output was the smallest since 1872 except for 1932. All important silver-producing States shared in raising the output, as did all other areas except the relatively minor producers, Eastern States and Texas.

Percentage gains among important silver-producing States ranged from 82 percent for Montana to 13 percent for Colorado. The leading six States in their 1947 order of output were Idaho (the chief producer since 1933) Utah, Montana, Arizona, Colorad and California. The major part of the silver produced in the foregoing States, except Idaho and Colorado, was probably, as in 1946, from base metal ores and responsive, therefor to the high prices that prevailed in 1947 for lead and copper, as well as silver. The quantity gains for the States listed totaled 11,077,000 ounces compared with the gain of 11,267,000 ounces for the United States as a whole.

Idaho's rise resulted principally from gains for the property of the Sunshine Mining Co., the Bunker Hill & Sullivan, Sherman, Sidney, Star, and Page, Yellow Pine and Mineral Point mines. Utah's output was favorably affected by the fact that labor strikes, which seriously hampered production at the Utah Copper mine and mines of the United States Smelting, Refining & Mining Co. in 1946, were largely absent in 1947. Montana, with the largest percentage increase among important producers by a narrow margin over Utah, had larger production mainly because of the marked gain in yield of silver from zinc-lead ores produced at the Butte Hill mine and dumps of the Anaconda Copper Mining Co. Arizona's output like Utah's, was influenced by the absence of strikes in 1947 contrasted with extended closures in 1946. Colorado and California had rises that were small compared with the performance of the country as a whole.

The Treasury buying price for silver domestically-mined after June 30, 1946 remained at \$0.905 per fine ounce throughout 1947 and corresponded with the average price of \$0.808 for 1946 and \$0.7111/ for July 1, 1939 through June 30, 1946.

This report which summarizes mine output for 1947 is part of the regular monthly silver mine production series. As preliminary figures for November and estimates for December are included, the report serves for both these months and the next issue will be for January 1948. The following table and State reviews for 1947 were obtained from current preliminary reports of the western field offices of the Bureau of Mines, a procedure followed in the preparation of all the reports in the series. The figures are given in terms of recoverable silver content of ores and concentrates.

Prepared by Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Alaska. - Alaskan silver output is largely a byproduct of placer gold operations; production in 1947 was 66 percent larger than in 1946.

Arizona. - Silver is produced in Arizona largely as a byproduct in the recovery of other metals but this State ranked fourth nonetheless in production in 1947, output rising 32 percent over 1946. The absence in 1947 of the more than three-months' strike at several important silver-producing mines in 1946, largely caused the improved showing. Production of silver from copper ore was about 2,420,000 ounces in 1947 (1,764,558 in 1946) and that from zinc-lead ore was 1,525,000 (1,205,685). About 74 percent of the State silver came from the Copper Queen, Morenci, United Verde, and New Cornelia mines of the Phelps Dodge Corp., and the Iron King and Magma mines. The outputs of the chief silver-producing districts were as follows: Warren (Bisbee) district, 1,430,000 ounces (721,135 in 1946); Copper Mountain (Morenci), 425,000; Big Bug, 380,000; Verde, 362,000; Ajo, 350,000; Pioneer (Superior), 325,000; Harshaw, 200,000; Globe (Inspiration-Miami), 175,000; and Pima, 150,000.

California. - California was the sixth largest silver-producing State in 1947; its output rose 22 percent and was the largest since 1941. Three-fourths of the 1947 total was derived from argentiferous lead and zinc-lead ores. The principal producers from such ores were the Anaconda Copper Mining Co., operating the Darwin mines, Coso district, and the Shoshone mines (from July 1, 1947), Resting Springs district, Inyo County, and the Finley Co. which operated the Shoshone mines (Columbia No. 2) during the first half of 1947. Other large silver producers were: The Shawmut Copper Mine Co., Penn mine (closed July 1947) Campo Seco district, Calaveras County (zinc ore); Frank W. Royer, Kelly mine, Randsburg district, San Bernardino County (gold-silver ore); Louis Warnken, Jr., operating in the Calico district, San Bernardino County; and the Mountain Copper Co., Ltd., Hornet Mine (closed June 1947), Flat Creek district, Shasta County, (zinc-copper ore). Much of the remainder of the silver produced in California during 1947 was derived from other base-metal ores.

Central States. - Silver continued to be recovered as a byproduct by smelters treating Southeastern Missouri lead concentrates, which usually contain from 1 to 2 ounces of silver to the ton. A large part of the bullion made from these concentrates is not desilverized. Copper concentrates from Southeastern Missouri and Michigan and lead concentrates from the Southern Illinois fluorspar-zinc-lead region yielded some recoverable silver.

Colorado. - The output of silver in Colorado, which again ranked fifth in the United States rose 13 percent in 1947 or to the highest level since 1942; it amounted, however, to less than 10 percent of the all-time peak production in 1892. Chief silver-producing counties in 1947 were the San Miguel, San Juan, Mineral, Lake, Eagle, Clear Creek, Summit, Ouray and Dolores. In 1946 Eagle and Clear Creek counties ranked below the others mentioned and the order of such others was slightly different. Mineral, Lake, Ouray and Dolores Counties showed drops as compared with 1946.

Eastern States. - The Eastern States area was distinguished by having registered the only decline other than Texas in silver output in the United States in 1947.

Idaho. - More silver is produced in Idaho than in any other State and a sharp gain, 53 percent, was registered in output in 1947. The good showing in 1947 reversed the uninterrupted decline since 1937 except for a slight upturn in 1940. The gain of nearly 3,500,000 ounces in 1947 (the gain alone exceeding the total productions of all but three other States) resulted principally from an increase in output of silver ore from property operated by the Sunshine Mining Co. near Kellogg, in the Coeur d'Alene region, from an increase in production of zinc-lead-silver ore from the Bunker Hill & Sullivan, Sherman, Sidney, Star, and Page mines, all in the Coeur d'Alene region, from gold-silver-antimony ore from the Yellow Pine mine at Stibnite in Valley County, and from silver-antimony ore from the Mineral Point mine at Osburn in the Coeur d'Alene region. A substantial decrease in silver output, however, was registered in 1947 from the Osburn tailing dump also in the Coeur d'Alene region. About 53 percent of the State output of silver in 1947 was recovered from silver ore, 40 percent from zinc-lead ore and old tailings, and the remainder largely from silver ore and lead ore. The Sunshine mine remained the largest producer of silver in the State, and its output in 1947 was double that in 1946; it was followed by the Polaris, Bunker Hill & Sullivan, Silver Dollar, Page, Triumph, Sherman, Yellow Pine, Osburn tailing dump, Star, Mineral Point, Morning, Sidney, Sweeny tailing dump, and Silver Syndicate mines; all except the Triumph and Yellow Pine properties are in the Coeur d'Alene region. The Coeur d'Alene region produced 90 percent of the State total for 1947, the remainder coming largely from the Warm Springs, Yellow Pine, Bayhorse, Middle Boise (Atlanta), and Blue Wing districts.

Montana. - Montana had the largest percentage gain among important silver-producing States in 1947, 82 percent, exceeding Utah's rise of 81 percent by a margin small enough to be reversed by final figures. Only Idaho and Utah surpassed Montana in silver production in 1947. The sharp advance was due mainly to the marked gain in yield of silver from zinc-lead ores produced at the Butte Hill mine and dumps of the Anaconda Copper Mining Co. at Butte. This source recovered 2 percent of the State total in 1946 but climbed to 46 percent in 1947. Silver output from the copper-producing operations of this company at Butte and Anaconda dropped again - 21 percent below 1946. The Emma and North Butte mines made substantial gains in 1947, and the Granite-Bimetallic tailings, a non-producer in 1946, returned to the list of important silver producers; output at the Mike Horse mine held near the 1946 level. The Anaconda Copper Mining Co. supplied 73 percent of the State silver and other important producers, in order of output were the Emma mine at Butte, Granite-Bimetallic tailings at Philipsburg, Mike Horse mine at Flesher, and the North Butte mine at Butte. The five mines furnished 82 percent of Montana's silver in 1947. Zinc-lead ore, was the leading source of silver in 1947 as contrasted with copper ore in 1946.

Nevada. - The virtually static annual silver production in 1947 (actually a gain of less than one-half percent) was achieved despite monthly rates that fluctuated between 86,900 and 137,800 ounces.

Between 75 and 80 percent of Nevada's silver was recovered from base-metal ores. Somewhat more than one-third was derived from zinc-lead ore and smaller quantities came from copper, lead, zinc, zinc-copper, gold, silver and gold-silver ores. The leading producers of silver from zinc-lead ore were the Combined Metals Reduction Co., Prince Consolidated Mining Co. and Ely Valley mine, in the Pioche district, Lincoln County; Hamilton and Jacobson, Yellow Pine district, Clark County; and the Callahan Zinc-Lead Co., Mount Hope mine, Eureka district, Eureka County. The leading producers from lead ore were the Salt Lake-Pioche Mining Co. (including lessees), Financier and Apex mines, Pioche district; McFarland & Hullinger, Cleveland mine, Delano district, Elko County; and the Alexander and Brooklyn Mines, Inc., Union district, Nye County. Copper ore and concentrates from the Kennecott Copper Corp. (Nevada Mines Division) and the Consolidated Coppermines Corp. mines in the Robinson district, White Pine County, Copper Canyon Mining Co.'s copper canyon operation, Battle Mountain district, Lander County, and the Bristol Silver Mines Co., Jack Rabbit district, Lincoln County, were important sources of silver in 1947. Gold-silver ore mined principally by the Consolidated Chollar Gould & Savage Mining Co., Overman mine, Comstock district, Storey County, and silver-bearing dump material from the Alpha Rye Patch mine, Echo district, Pershing County, treated by the Standard Cyaniding Co. were also important sources of silver.

New Mexico. - Silver output in New Mexico gained 35 percent in 1947. Much of the silver produced during the year was from the Bonney and Misers Chest group of mines, operated by the Banner Mining Co., and the Atwood mine, operated by Atwood Copper Mines.

Oregon. - Production of silver in Oregon in 1947 - largely from one mine - was 5 times the 1946 output, but the total was only 12 percent of the all-time record set in 1941. The principal producer was the Oregon King Mines, Ashwood district, Jefferson County; the metal was recovered from silver ore shipped for direct smelting.

South Dakota. - The Homestake Mining Co. and the Bald Mountain Mining Co., chief producers of gold and silver in South Dakota, reported inability to recruit more than 60 to 65 percent of the underground personnel necessary for full-scale operations. Silver production, nonetheless, rose 31 percent in 1947, the former company supplying 79,600 ounces and the latter, 33,574.

Utah. - Silver is produced chiefly as a byproduct of base-metal mining in Utah, but the State ranked second only to Idaho in the United States in 1947. Production rose 81 percent chiefly because mines and plants of the Utah Copper Co. and United States Smelting, Refining & Mining Co., by far the largest silver producers in the State, had prolonged labor strikes in 1946, but in 1947 were adversely affected only by one of the Bingham and Garfield Railroad lasting from October 22 to November 5. Almost without exception, every important producer increased its output of silver, and production in 1947 was more than double that in 1946 by the Utah Copper mine, United States & Lark group, Pacific Bridge operations, and the Butterfield property. The important silver producers in 1947 in order were the Kennecott Copper Corp. (Utah Copper mine), United States Smelting, Refining & Mining Co. (United States & Lark group), Chief Consolidated Mining Co., Park Utah Consolidated Mines Co., New Park Mining Co., Silver King Coalition Mines Co., Calumet mine, Pacific Bridge Co., Tintic Standard Mining Co., and the Combined Metals Reduction Co. and lessees (the Butterfield property). These 10 properties supplied 91 percent of Utah's total silver. Zinc-lead ore, zinc ore, and lead ore together supplied 52 percent of the total silver in Utah in 1947, copper ore 40 percent, and siliceous ores 8 percent.

Washington. - Silver output in Washington advanced 10 percent in 1947 or considerably below the average rise. All leading producers made gains except the Holden mine, Chelan County, which suspended production from November 9, 1946 until August 1947, to concentrate on development work. The Knob Hill mine (gold ore) continued in the lead, followed by the Holden group (zinc-copper ore) and the Kaaba Silver-Lead mine (zinc-lead ore). The foregoing properties accounted for 74 percent of the total for the State.

Mine production of recoverable silver in the United States in 1947,
by months 1/, in fine ounces

Region and State	January	February	March	April	May	June	July	August	September	October	November	December	Total
Eastern States..	4,420	3,249	4,424	3,852	6,092	4,508	4,216	4,915	4,531	4,177	4,200	4,416	53,000
Central States..	6,410	8,769	6,895	6,413	5,682	5,413	5,945	6,987	6,674	9,450	5,220	5,142	79,000
Western States:													
Arizona.......	359,000	359,000	355,000	390,000	375,000	369,000	355,000	363,000	337,000	355,000	340,000	343,000	4,300,000
California....	191,300	185,600	168,700	172,400	151,300	150,700	95,100	102,300	117,800	85,600	117,000	105,000	1,642,800
Colorado......	144,650	150,627	163,190	163,499	230,500	245,200	193,100	235,650	241,825	255,220	257,350	246,000	2,526,811
Idaho.........	726,500	685,000	793,700	967,700	756,000	750,000	763,000	825,700	780,000	1,090,400	920,000	882,000	9,940,000
Montana.......	349,000	425,000	498,000	547,870	581,000	500,000	536,625	535,700	481,205	487,750	510,000	499,850	5,952,000
Nevada........	110,600	97,700	86,900	97,700	124,900	137,800	127,980	101,480	91,640	95,200	93,000	90,000	1,254,900
New Mexico....	32,960	33,425	24,625	30,750	35,575	38,540	37,800	42,475	45,550	48,360	42,930	42,250	455,240
Oregon........	350	180	250	2,400	2,200	6,720	6,000	2,700	2,850	3,100	3,250	3,000	33,000
South Dakota..	9,334	9,393	11,040	10,955	7,687	8,891	9,990	9,773	10,251	9,476	7,200	9,920	113,910
Texas.........	126	6,185	1,760	5,782	2,067	1,754	13	643	50	582	1,560	660	21,182
Utah..........	592,300	610,200	631,950	660,265	728,450	660,000	593,165	656,000	656,635	521,435	522,600	617,000	7,450,000
Washington....	13,400	18,450	25,240	21,000	31,000	18,200	23,660	32,000	28,850	27,200	26,000	25,000	290,000
Wyoming.......	-	3	4	4	4	14	26	17	28	-	-	-	100
	2,529,520	2,580,763	2,760,359	3,070,325	3,025,683	2,886,319	2,741,459	2,907,438	2,793,684	2,979,323	2,840,890	2,863,630	33,979,943
Alaska 2/.......	6,455	147	127	1,052	463	2,933	6,896	7,432	13,746	17,141	7,000	6,000	69,392
Total United States.	2,546,805	2,592,928	2,771,805	3,081,642	3,037,920	2,899,673	2,758,516	2,926,772	2,818,635	3,010,091	2,857,310	2,879,238	34,181,335

1/Revised figures.
2/Alaska monthly totals based on mint and smelter receipts.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

31476

FOR RELEASE: January 16, 1948 MINERAL MARKET REPORT, NO. MMS 1579

A 3 PERCENT INCREASE IS RECORDED IN NATURAL GAS PRODUCTION IN 1946

Marketed production of natural gas was 4,030,605 million cubic feet in 1946, 3 percent above the 1945 peak of 3,918,686 million, according to the Bureau of Mines, U. S. Department of the Interior. Principal gains in output were recorded in Texas (65 billion cubic feet), Oklahoma (23 billion), Kansas (20 billion), and New Mexico (14 billion). The principal declines were in California and Louisiana. The Appalachian region (5 States), reversed its declining trend with an increase of 25 billion cubic feet.

Total consumption increased 3 percent above the 1945 record to 4,012,930 million cubic feet. Domestic consumption increased 9 percent, commercial consumption 5 percent, and total industrial consumption 2 percent over the 1945 record. Decreases in field use, fuel at petroleum refineries and at public-utility power plants were exceeded by increases in gas used for carbon-black manufacture, as fuel in portland-cement plants, and for miscellaneous industrial uses.

Consumption was divided between the major classes of consumers in millions of cubic feet as follows: Domestic 660,820 (17 percent), commercial 241,802 (6 percent), oil and gas field 897,809 (22 percent), carbon black manufacture 478,349 (12 percent), petroleum refineries 331,520 (8 percent), portland-cement plants 58,004 (1 percent), and miscellaneous industrial including electric public-utility power plants 1,344,626 (34 percent).

There were 11,471,640 domestic and 964,990 commercial consumers during 1946, 5 and 9 percent respectively, more than in 1945. Of these, 8,817,130 domestic and 817,320 commercial consumers used 100 percent natural gas. The remainder used natural mixed with manufactured gas.

The interstate transportation of natural gas increased 4 percent over the 1945 record to 1,145,901 million cubic feet including 17,475 million piped to Mexico and 200 million piped to Canada.

An estimated gross production and disposition of natural gas in 1946, indicates that approximately 4,903,688 million cubic feet of gas (estimated gross production less repressuring and net stored) were withdrawn from available reserves during 1946

Prepared under the supervision of F. S. LOTT, Chief, Petroleum Economics Branch, Economics and Statistics Division.

INTERSTATE TRANSPORTATION AND EXPORTS OF NATURAL GAS IN 1946 1/

State from which gas was transported	State to which gas was transported	Millions of cu. ft.
Arkansas	Louisiana	354
Colorado	Utah	4,524
	Wyoming	343
		4,867
Indiana	Illinois	6
Kansas	Colorado	1,022
	Illinois	3,760
	Indiana	6,709
	Iowa	13,084
	Michigan	12,379
	Minnesota	19,590
	Missouri	6,421
	Nebraska	19,592
	Ohio	7,951
	Oklahoma	972
	South Dakota	2,230
		93,710
Kentucky	D. C.	5,200
	Illinois	5
	Indiana	545
	Maryland	1,028
	New York	360
	Ohio	10,289
	Pennsylvania	19,333
	Virginia	757
	West Virginia	13,824
		51,341
Louisiana	Alabama	34,598
	Arkansas	30,910
	Florida	7,038
	Georgia	23,680
	Illinois	18,993
	Mississippi	29,591
	Missouri	22,532
	Tennessee	21,526
	Texas	15,388
		204,256
Mississippi	Alabama	58
	Florida	21
		79
Montana	North Dakota	2,519
	South Dakota	2,892
		5,411
New Mexico	Arizona	24,198
	Colorado	389
	Mexico	3,315
	Texas	8,201
		36,103
New York	Canada	20
	Pennsylvania	1,145
		1,165
North Dakota	South Dakota	344
Ohio	West Virginia	772
Oklahoma	Arkansas	4,133
	Illinois	3,909
	Indiana	6,971
	Kansas	66,774
	Michigan	12,794
	Missouri	28,522
	Nebraska	879
	Ohio	8,263
	Texas	17,891
		150,136
Pennsylvania	Canada	180
	Maryland	275
	New York	18,702
	Ohio	98
	West Virginia	1,060
		20,315
Texas	Alabama	10,789
	Arkansas	7,802
	Colorado	37,146
	Georgia	12,999
	Illinois	80,445
	Indiana	24,872
	Iowa	20,079
	Kansas	37,031
	Kentucky	6,814
	Louisiana	10,088
	Maryland	175
	Mexico	14,160
	Michigan	23,199
	Minnesota	18,034
	Mississippi	5,041
	Missouri	16,742
	Nebraska	11,477
	New Mexico	2,503
	New York	3,761
	Ohio	44,519
	Oklahoma	14,207
	Pennsylvania	22,958
	South Dakota	2,055
	Tennessee	2,747
	West Virginia	20,417
	Wisconsin	86
	Wyoming	1,025
		451,171
Utah	Wyoming	29
Virginia	Tennessee	24
West Virginia	D. C.	2,228
	Kentucky	3,625
	Maryland	1,352
	New York	6,150
	Ohio	56,609
	Pennsylvania	43,023
	Virginia	1,311
		114,298
Wyoming	Montana	2,910
	Nebraska	1,624
	Utah	6,986
		11,520
TOTAL UNITED STATES		1,145,901

1/ Includes:

Exports to Canada	200
Exports to Mexico	17,475

SUMMARY OF NATURAL GAS STATISTICS, 1946

State	Production			Consumption											Gas used at electric public-utility power plants (Millions of cu. ft.) 1/
				Domestic			Commercial			Industrial					
										Field (drilling, pumping, etc.)		All other industrial			
												Millions of cu. ft.			
	Millions of cu.ft.	Average value at wells per M. cu. ft. (cents)	Average value at points of consumption per M. cu. ft. (cents)	Thousands of consumers	Millions of cu.ft.	Average value at points of consumption per M. cu. ft. (cents)	Thousands of consumers	Millions of cu.ft.	Average value at points of consumption per M. cu. ft. (cents)	Millions of cu.ft.	Value at points of consumption (thousands of dollars)	Fuel at petroleum refineries	Other including electric public-utility power plants	Value at points of consumption (thousands of dollars)	
Alabama.....	-	-	-	61	3,767	74.4	6	1,564	45.4	-	-	-	40,114	6,723	6,090
Arizona.....	-	-	-	57	2,944	84.5	7	2,260	41.0	-	-	-	18,994	3,885	3,574
Arkansas....	45,177	2.5	13.7	109	10,227	48.7	18	5,365	34.9	18,233	903	6,965	46,878	4,317	6,615
California..	487,904	7.4	29.5	2,034	124,968	64.8	180	60,013	37.1	129,427	9,864	47,883	125,613	30,730	18,578
Colorado....	6,728	4.7	27.2	122	10,777	64.6	14	3,954	48.6	1,674	272	1	24,012	3,235	5,090
Georgia.....	-	-	-	118	7,989	80.7	11	3,890	38.9	-	-	-	24,800	4,847	12,818
Illinois....	17,166	5.1	18.3	1,430	29,180	109.4	79	7,741	73.2	16,233	745	100	71,030	16,609	2,170
Indiana.....	1,094	10.3	77.5	240	8,610	114.5	16	2,259	83.5	402	40	1,546	27,368	8,371	1,428
Iowa........	-	-	-	171	8,429	87.3	15	2,674	63.3	-	-	-	22,060	3,742	7,741
Kansas......	165,725	5.0	31.7	270	25,554	59.4	33	12,703	32.2	19,809	1,161	10,446	107.308	12,455	27,883
Kentucky....	70,396	14.8	44.9	203	13,265	57.1	21	4,092	47.2	3,265	475	66	8,806	2,493	-
Louisiana...	525,178	3.5	16.3	273	15,263	60.6	30	9,114	31.1	99,260	3,828	55,397	152,330	16,384	38,493
Michigan....	20,879	12.8	61.7	856	37,743	89.5	39	6,158	74.3	2,236	297	51	23,063	10,156	5
Minnesota...	-	-	-	188	11,175	66.0	9	3,060	41.3	-	-	-	23,389	4,338	7,794
Mississippi.	7,225	4.6	23.7	82	5,915	72.0	12	4,451	35.7	6,998	547	-	24,414	3,506	3,187
Missouri....	40	15.0	52.5	470	21,577	86.6	36	5,807	55.0	18	2	912	45,943	9,135	14,067
Montana.....	30,713	4.6	28.7	53	8,731	47.0	6	5,416	30.8	1,631	138	2,198	10,236	1,793	990
Nebraska....	-	-	-	146	9,347	66.3	11	3,492	45.6	-	-	6	20,727	3,446	7,287
New Mexico..	119,262	1.4	14.3	45	3,911	63.7	6	3,531	31.6	32,203	638	1,192	44,825	3,233	6,873
New York....	5,084	26.6	68.1	571	22,494	80.8	43	4,433	72.3	74	29	176	5,715	3,334	777
Ohio........	61,570	18.3	51.9	1,372	94,343	62.2	115	20,291	56.1	1,429	313	1	72,463	27,967	1,710
Oklahoma....	380,938	3.2	19.6	322	28,482	46.4	41	15,430	28.3	105,126	3,296	27,589	69,354	8,824	22,843
Pennsylvania	92,443	25.4	50.0	719	48,854	63.7	51	9,652	52.8	4,892	1,569	515	94,674	31,535	5
Tennessee...	47	10.6	42.6	85	5,623	71.6	11	2,730	51.0	-	-	-	15,991	2.600	3,026
Texas.......	1,776,148	3.0	15.7	894	56,501	62.9	105	27,923	33.4	433,901	14,346	170,366	677,766	48,487	101,780
West Virginia	178,958	14.9	42.4	222	24,783	36.1	22	5,290	34.3	12,546	2,467	1,018	57,096	14,227	802
Wyoming.....	33,266	3.8	23.5	28	4,214	49.6	4	2,903	28.9	8,446	387	4,092	3,488	913	332
Other States	4,664	4.9	32.9	331	16,154	78.2	24	5,606	50.5	6	(2/)	1,000	22,522	4,170	4,966
Total, 1946	4,030,605	5.3	22.0	11,472	660,820	67.6	965	241,802	42.4	897,809	41,317	331,520	1,880,979	291,455	306,924
1945	3,918,686	4.9	21.4	10,959	607,400	68.3	889	230,099	42.4	916,952	40,090	338,458	1,807,570	281,411	326,190

1/ Federal Power Commission: Figures include gas other than natural, impossible to segregate and therefore shown separately from main table.
2/ Less than $500.

GROSS PRODUCTION AND DISPOSITION OF NATURAL GAS IN THE UNITED STATES, BY STATES, IN 1946
IN MILLIONS OF CUBIC FEET

31476

State	Estimated Production 1/			Estimated Disposition			
	From gas wells	From oil wells	Total	Marketed production	Repressuring	Stored in ground (net)	Losses and waste 2/
Arkansas	34,000	38,000	72,000	45,177	11,010	1,189	14,624
California	189,000	465,000	654,000	487,904	134,668	4,442	26,986
Colorado	6,900	2,500	9,400	6,728	500	-	2,172
Illinois	400	59,600	60,000	17,166	8,000	451	34,383
Indiana	600	1,420	2,020	1,094	622	3/ 278	358
Kansas	128,000	43,000	171,000	165,725	1,918	3/ (-) 339	9,767
Kentucky	71,000	9,000	80,000	70,396	829	3/ 447	6,173
Louisiana	602,000	167,000	769,000	525,178	151,369	-	92,453
Michigan	23,800	2,200	26,000	20,879	-	(-) 1,363	6,484
Mississippi	1,900	19,840	21,740	7,225	1,482	-	13,033
Missouri	43	-	43	40	-	-	3
Montana	30,500	2,600	33,100	30,713	132	435	1,820
New Mexico	27,200	126,040	153,240	119,262	2,595	1,344	30,039
New York	6,280	250	6,530	5,084	-	3/ 1,513	495
Ohio	57,600	3,700	61,300	61,570	10	3/ 3,963	5,015
Oklahoma	240,200	198,600	438,800	380,938	15,591	3/ 2,784	33,997
Pennsylvania ...	88,900	4,300	93,200	92,443	64	3/ 2,480	3,306
Texas	2,074,900	980,000	3,054,900	1,776,148	696,000	(-) 425	571,529
Utah	4,320	-	4,320	4,252	-	-	68
West Virginia ..	193,500	7,000	200,500	178,958	1,605	3/ 2,127	15,787
Wyoming	26,000	23,700	49,700	33,266	11,847	4	4,583
Other States ...	4/ 457	10	467	459	-	-	8
Total	3,807,500	2,153,760	5,961,260	4,030,605	1,038,242	19,330	873,083

1/ Marketed production plus quantities used in repressuring, stored in ground, lost, and wasted (see footnote 2).

2/ Includes gas (mostly residue gas) blown to the air and transportation losses but does not include direct waste on producing properties, except where data are available.

3/ Includes gas transported from other States.

4/ Florida, North Dakota, South Dakota, Tennessee, and Virginia.

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FOR RELEASE : March 3, 1948 : MINERAL MARKET REPORT, NO. MMS 1580.

DISTILLATE AND KEROSINE SALES INCREASE - RESIDUAL GRADES DECLINE IN 1946

Sales of light fuel oils and kerosine established new records again in 1946, while deliveries of heavy fuel oils dropped sharply from the 1945 "peak" according to the annual survey of deliveries made by the Petroleum Economics Branch, Bureau of Mines, United States Department of the Interior. Reports of oil dealers indicate sales of 242,550,000 barrels of distillate fuel oils in 1946, a 5-percent gain over 1945 requirements of 231,625,000, while the market for kerosine rose by nearly 18 percent from 74,876,000 barrels in 1945 to 88,090,000 in 1946. The need for heavy fuel oils shrunk noticeably during the first full year of peace and as a result the total declined by 11 percent from 542,265,000 barrels in 1945 to 483,226,000 in 1946. Exports of distillate fuel oils dropped by 12 percent from 33,496,000 barrels in 1945 to 29,353,000 in 1946, while overseas demand for residual grades slumped by 19 percent from 11,669,000 barrels in 1945 to 9,486,000 in 1946. Exports of kerosine rose noticeably from 6,180,000 barrels in 1945 to 8,559,000 in 1946.

All principal demands for distillate fuel oils showed gains in 1946, except quantities reported for the consumption by vessels and the military forces. The shrinkage in these two important uses was confined largely to the Diesel grades and the net result was the relatively small gain (5 percent) in deliveries of total distillate fuels in 1946. The railroads bought a fifth more light fuel oils, mostly Diesel fuel, in 1946 than in 1945. Water-borne traffic contracted sharply with the ending of the war and consequently the need for distillate fuels, also largely Diesel grades, slumped by 15 percent in volume. Gas and electric power plants turned strongly to oil fuel in 1946 and as a result their purchases of the light grades were more than 50 percent above the 1945 total. The distillate fuel oil credited to smelters, mines, and manufacturing plants mounted by 12 percent in 1946, while the quantity sold for domestic heating, with all rationing regulations off for the full year and with numerous new burner installations to supply increased by nearly 18 percent. The total of No. 1 fuel oil delivered for range burners was also up noticeably in 1946 - 13 percent over 1945 requirements. The military forces, under peace conditions, bought comparatively small quantities of Diesel fuel and other light grades of fuel oil and consequently the 1946 total was nearly 70 percent below the 1945 comparative item. Oil companies use very little distillate fuel oil in their operations, however, the 1946 quantity was considerably above the 1945 consumption. Distillate fuel oil reported for miscellaneous uses, including tractor fuel, in 1946 was 11 percent over the 1945 total.

Prepared by A. T. Coumbe, Petroleum Economics Branch, Economics and Statistics Division.

Sales of distillate fuel oil 1942-1946, by uses
(Thousands of barrels of 42 gallons)

Uses	1942	1943	1944	1945	1946	Percent of change in 1946 compared with 1945.
Railroads	6,488	8,608	10,627	14,458	17,570	21.5
Vessels (including tankers)	8,900	11,069	13,187	14,130	12,064	-14.6
Gas and electric power plants	5,704	5,954	5,837	6,824	10,581	55.1
Smelters, mines, and manufacturing industries	12,617	15,125	16,953	19,071	21,317	11.8
Heating oils	121,506	112,581	111,729	121,342	142,637	17.5
No. 1 fuel oil sold as range oil	4,978	5,876	6,619	7,481	8,459	13.1
U.S. Navy, Army, and Coast Guard	11,269	33,385	42,879	30,366	9,385	-69.1
Oil company fuel	1,064	884	981	1,128	1,890	67.6
Miscellaneous uses	14,287	14,232	15,060	16,825	18,647	10.8
Total United States	186,813	207,712	223,872	231,625	242,550	4.7
Exports and Shipments.	21,575	24,957	43,491	33,496	29,353	-12.4
	208,388	232,669	267,363	265,121	271,903	2.6

Sales of distillate fuel oil by uses on a percentage basis, 1942-1946

Uses	1942	1943	1944	1945	1946
Railroads	3.5	4.1	4.7	6.2	7.2
Vessels (including tankers)	4.7	5.3	5.9	6.1	5.0
Gas and electric power plants	3.1	2.9	2.6	3.0	4.3
Smelters, mines, and manufacturing industries	6.7	7.3	7.6	8.2	8.8
Heating oils	65.0	54.2	49.9	52.4	58.8
No. 1 fuel oil sold as range oil	2.7	2.8	3.0	3.2	3.5
U.S. Navy, Army, and Coast Guard	6.0	16.1	19.2	13.1	3.9
Oil company fuel	0.6	0.4	0.4	0.5	0.8
Miscellaneous uses	7.7	6.9	6.7	7.3	7.7
Total United States	100.0	100.0	100.0	100.0	100.0

Sales of residual fuel oils to the transportation industries - railroads and vessels - and to the military forces dropped sharply in 1946 during the change-over to a peace-time economy, however, all other demands, except a relative small quantity reported for miscellaneous uses, were, on a whole, substantially higher than in 1945. Railroad purchases of heavy fuel oil in 1946 were 11 percent below the 1945 level, while quantities delivered for the bunkering of vessels were down similarly - 12 percent - in the same period. Low water used for the generation of electric energy and some shift from coal and natural gas to heavy oil for fuel purposes are reflected in a 48-percent gain in the volume of residual fuel oil delivered to the public utilities in 1946. The heavy industries, such as mines, smelters, and manufacturing plants bought 4 percent more residual oil for fuel purposes in 1946 than in 1945, while oil companies consumed slightly more heavy fuel oil in their field, pipe-line and refinery operations in 1946 than in the previous year. Residual fuel oil reported as delivered for space heating in 1946 was 13 percent over the 1945 demand, while purchases of this type of fuel by the military branches of the Government dropped drastically - 63 percent - in 1946 compared with 1945 requirements.

Sales of residual fuel oil 1942-1946, by uses
(Thousands of barrels of 42 gallons)

Uses	1942	1943	1944	1945	1946	Percent of change in 1946 compared with 1945
Railroads...........	99,996	116,278	114,535	112,297	100,305	-10.7
Vessels (including tankers)..........	37,317	62,196	92,069	100,365	88,185	-12.1
Gas and electric power plants...........	28,101	30,358	34,476	34,532	50,921	47.5
Smelters, mines, and manufacturing industries........	84,515	84,219	86,664	91,176	95,177	4.4
Heating oils........	47,483	42,670	40,474	43,874	49,734	13.4
U.S. Navy, Army, and Coast Guard.......	56,551	92,713	101,347	97,485	35,822	-63.3
Oil company fuel....	44,571	47,123	55,363	57,336	58,054	1.3
Miscellaneous uses..	6,019	6,920	4,484	5,200	5,028	-3.3
Total U. S.	405,333	482,477	529,412	542,265	483,226	-10.9
Exports and shipments	12,095	14,894	12,536	11,669	9,486	-18.7
	417,428	497,371	541,948	553,934	492,712	-11.1

Sales of residual fuel oil by uses on a percentage basis, 1942-1946

Uses	1942	1943	1944	1945	1946
Railroads..........................	24.7	24.1	21.6	20.7	20.8
Vessels (including tankers).........	9.3	12.9	17.4	18.5	18.3
Gas and electric power plants.......	6.9	6.4	6.5	6.4	10,5
Smelters, miners, and manufacturing industries..........................	20.9	17.5	16.4	16.8	19.7
Heating oils........................	11.7	8.8	7.6	8.1	10.3
U.S. Navy, Army, and Coast Guard....	13.9	19.2	19.1	18.0	7.4
Oil company fuel....................	11.1	9.8	10.5	10.6	12.0
Miscellaneous uses..................	1.5	1.3	0.9	0.9	1.0
Total United States.......	100.0	100.0	100.0	100.0	100.0

Railroads.- The railroads continued to buy increasing amounts of distillate fuel oils, especially Diesel fuel, in 1946, while requirements for the residual grades dropped for the third consecutive year. Light fuel oils sold to the railroads made up about 6 percent of the total demand for all principal uses in 1945 and 7 percent in 1946, while heavy fuel oils credited to this particular industry represented about 21 percent of total domestic requirements for both 1945 and 1946.

In the railroads' shift from a war-time "peak" in freight and passenger traffic and a pronounced turn to Diesel equipment for motive power, their purchases of distillate fuel oils increased by 22 percent from 14,458,000 barrels in 1945 to 17,570,000 in 1946, however, the Diesel fuel making up these totals rose by 25 percent from 12,036,000 barrels in 1945 to 14,979,000 in 1946. The fast growing demand for Diesel fuel by the railroads is better understood when it is noted that Diesel engines used by them have increased steadily from a total of 1,267 in 1941 to 3,816 in 1945 and to 4,441 in 1946. The Diesel equipment used for hauling freight during the same years has mounted from 64 in 1941 to 1,044 in 1945 and to 1,251 in 1946; passenger train engines, 194 in 1941, 443 in 1945 and 648 in 1946; and switching engines 1,009 in 1941, 2,329 in 1945 and 2,542 in 1946.

Over half of the Diesel fuel credited to the railroads is reported from the North and South Central States. Deliveries of Diesel oil to the railroads operating in the North Central States made up 27 percent of the total in 1945 and 28 percent in 1946 and the quantity for the area increased by 29 percent from 3,255,000 barrels in 1945 to 4,212,000 in 1946. In the South Central States the railroads purchased 2,697,000 barrels of Diesel fuel in 1945 and 3,511,000 in 1946 - a gain of 30 percent and the respective totals represented 22 percent of the railroad demand for this fuel in 1945 and 24 percent in 1946. Railroads operating in the Pacific Coast area also use large quantities of Diesel fuel and the volume increased by 5 percent from 1,921,000 barrels in 1945 to 2,010,000 in 1946. Relatively less important amounts of Diesel oil are used by the railroads in other parts of the country, however the demand rose noticeably in all areas.

The declining needs for residual fuel oils by the railroads are indicated in their smaller purchases, which have dropped from a "peak" of 116,278,000 barrels in 1943 to 112,297,000 in 1945 and then down by 11 percent to 100,305,000 barrels in 1946. Most of the heavy fuel oils credited to the railroads is reported from the South Central and Pacific Coast States. About 45 percent of the national total is used in the South Central States and there the demand dropped from 50,803,000 barrels in 1945 to 45,178,000 in 1946 - an 11-percent decline, while in the Pacific Coast area sales of residual fuel oil to the railroads shrunk from 47,203,000 barrels in 1945 to 40,987,000 in 1946 - a drop of 13 percent. Very little heavy fuel oil is sold to the railroads operating in other parts of the country, except in the Rocky Mountain States, where sales were 9,843,000 barrels in 1945 and 9,720,000 in 1946.

Vessels.- Water-borne freight tonnage returned towards peace-time levels in 1946 and as a result the demand for bunker fuel oil also slackened. Light fuel oils, mostly Diesel grades, sold for vessel fuel dropped by 15 percent from 14,130,000 barrels in 1945 to 12,064,000 in 1946, while the total for residual fuel oil was down by 12 percent to 88,185,000 barrels in 1946 compared with "peak" requirements of 100,365,000 in 1945. Diesel fuel loaded for ships' bunkers, included in the light fuel oil figures above, of 11,135,000 barrels in 1946 was 17 percent below the 1945 total of 13,374,000 barrels. Light fuel oil reported for vessel fuel represented 5 percent of total requirements for this grade of fuel in 1946 compared with 6 percent in 1945, while for residual grades sold to vessels the share was about 18 percent of total deliveries for both 1945 and 1946.

The Bureau of the Census, United States Department of Commerce, compiles data covering the demand for bunker fuel oil by vessels engaged in foreign trade. Their records for this overseas trade show a demand of 5,466,000 barrels of Diesel fuel in 1946 compared with 6,905,000 in 1945. If these quantities are deducted from total Diesel oil sales to vessels, we have indicated loadings of 5,669,000 barrels of Diesel grade fuel oil for vessels using coastal and inland water-ways in 1946 compared with 6,469,000 barrels in 1945. A similar calculation covering residual fuel oil shows a bunker demand for vessels in foreign trade of 72,706,000 barrels in 1945 and 55,340,000 in 1946 (Bureau of the Census items) and 27,659,000 barrels in 1945 and 32,845,000 in 1946 for ships plying coastal and inland waters. This net gain in total demand for fuel oil bunkers by vessels using coast and inland waters in 1946 and the lower requirements for ships registered in foreign trade are better understandable when the freight tonnage figures for the two different classes of shipping are examined. Statistics, compiled by the Board of Engineers for Rivers and Harbors, show that the freight tonnage handled on coastal and inland waters increased by 53 percent in 1946 over 1945, while data credited to the Bureau of the Census indicate a drop of export freight tonnage of 24 percent in 1946 compared with 1945. There was a gain of 8 percent in the tonnage for imports in 1946 over 1945, however, it should be added that vessels bringing imports into the country usually consume bunker oil loaded at foreign ports and consequently lower the demand for this class of trade at American terminals.

Sales of Diesel fuel for ships' bunkers showed losses in all parts of the country, except along the Gulf Coast, where the demand was up by 16 percent from 2,954,000 barrels in 1945 to 3,414,000 in 1946. The loss in the Diesel bunker trade was most severe on the Atlantic Coast where sales fell off by 35 percent from 7,593,000 barrels in 1945 to 4,934,000 in 1946. The decline in this Diesel oil demand was only trivial for the Pacific Coast where deliveries totaled

2,385,000 barrels in 1946 compared with 2,411,000 in 1945. In contrast to these losses loadings of Diesel bunkers on the Gulf Coast rose from 2,934,000 barrels in 1945 to 3,414,000 in 1946 - a 16 percent gain.

As mentioned in connection with Diesel fuels, all sections of the country also reported a lower demand for residual bunker oil in 1946 than in 1945, with the exception of the Gulf Coast. In the Gulf Coast area, sales of heavy fuel oil to vessels increased by over 40 percent from 21,543,000 barrels in 1945 to 30,560,000 in 1946. This gain in bunker oil demand along the Gulf Coast for both light and heavy fuel oils is largely due to the revival in the oil tanker trade, in which shipments of petroleum products to the East Coast alone increased by over 100 percent in 1946 over 1945.

Loadings of heavy bunker fuel on the East Coast declined by 13 percent or from 46,484,000 barrels in 1945 to 40,241,000 in 1946, while the shrinkage in the trade was even more critical on the Pacific Coast - 46 percent or from 31,240,000 barrels in 1945 to 16,795,000 in 1946. This marked decline in bunker loading of residual fuel oil on the West Coast in 1946 is largely connected to the ending of the war in the Far East.

Gas and electric power plants.- Public utilities turned strongly to oil fuel in 1946 and as a result their purchases of light fuel oils, including Diesel grades, rose by 55 percent from 6,824,000 barrels in 1945 to 10,581,000 in 1946. The volume for residuals was up almost proportionately - 48 percent - or to 50,921,000 barrels in 1946 compared with 34,532,000 in 1945. Light fuel oils sold to gas and electric power plants accounted for about 4 percent of all requirements for distillate grades in 1946 compared with a 3-percent share of the total in 1945, while 11 percent of all the heavy fuel oil delivered was credited to these industries in 1946 against a 6-percent proportion in 1945.

Fuel oil consumed by manufactured-gas companies increased from 22,057,000 barrels (5,102,000 barrels distillates and 16,955,000 residuals) in 1945 to 24,783,000 (6,188,000 barrels distillates and 18,595,000 residuals) in 1946 - a gain of 12 percent according to statistics released by the American Gas Association. The shift to oil fuel by the electric power companies was even more outstanding, as shown by the records of the Federal Power Commission, as their use of fuel oil rose from 20,228,000 barrels in 1945 to 36,316,000 in 1946 - an expansion of 80 percent compared with a drop of 5 percent in 1945 from the 1944 total. This far greater consumption of oil fuel used for the generation of electric energy in 1946 is better understood when it is realized that although the total electricity produced by all fuels was up by 2 percent in 1946, the use of competitive fuels dropped (the volume for coal was down over 3 percent and that for natural gas shrunk by 6 percent) and that conversely, the energy credited to hydro power was lower by 2 percent in 1946 compared with 1945. If the electric energy produced by fuels is reviewed, it is noticed that the proportion credited to fuel oil rose from less than 6 percent of the total in 1945 to about 10 percent in 1946, while that for coal dropped from 81 percent in 1945 to 77 percent in 1946, and for natural gas the relative shares of the total were 14 percent in 1945 and 13 percent in 1946.

Greatly increased sales of distillate fuel oils, including Diesel grades, to gas and electric power plants was evident in all parts of the country. Light fuel oils reported as delivered to public utilities operating in the Atlantic Coast area rose from 3,714,000 barrels in 1945 to 6,498,000 in 1946 - a gain of 75 percent. The total for the Middle Atlantic States - 4,182,000 barrels in 1946 - was more than double 1945 requirements of 2,023,000 barrels.

Utility plants operating in the North Central States bought 2,091,000 barrels of light fuel oils in 1946, a third more than in 1945, while for the Pacific Coast area purchases were 795,000 barrels in 1946 or 56 percent over the 1945 total of 509,000 barrels.

Deliveries of residual fuel oil to gas and electric power plants were likewise higher in all parts of the country in 1946, except for the South Central States, where the quantity dropped from 1,521,000 barrels in 1945 to 1,412,000 in 1946. The public utilities operating in the Atlantic Coast States bought 33,779,000 barrels of heavy fuel oil in 1946 - a gain of 35 percent over the 1945 total of 25,058,000 barrels. Gains in the residual fuel oil volume for the New England States - 72 percent - and for the Middle Atlantic States - 40 percent - were outstanding in 1946 and evidently reflect the disruption in the coal supply. Oil companies reported 2,305,000 barrels of residual grades as sold to public utilities in the North Central States in 1946 - an expansion of 31 percent over 1945 requirements of 1,763,000 barrels. Low water for hydro-power generation in the West Coast States as well as a dwindling use of natural gas for this purpose forced up the volume of heavy fuel oil requirements from 6,052,000 barrels in 1945 to 13,267,000 barrels in 1946.

Smelters, mines, and manufacturing industries.- The index of manufacturing as determined by the Federal Reserve Board dropped from 214 in 1945 to 177 in 1946, however more fuel oil (12 percent more distillates and 4 percent more residuals) and a greater volume of natural gas (2 percent over 1945) were consumed as fuel , while the quantity of coal used in these same industries declined by over 8 percent in 1946, probably due largely to interruptions in the supply. Light fuel oil, including Diesel grades, delivered to smelters, mines, and manufacturing plants increased from 19,071,000 barrels in 1945 to 21,317,000 in 1946. Diesel oils making up these totals rose from 6,025,000 barrels in 1945 to 7,421,000 in 1946 - a gain of 23 percent. Industrial plants purchased 91,176,000 barrels of heavy oil for fuel in 1945 and 95,177,000 in 1946. The distillate fuel oils sold for this purpose made up about 9 percent of the national total in 1946 compared with 8 percent in 1945, while the share for heavy fuel oils sold to this same group of industries went from 17 percent of all domestic requirements in 1945 to about 20 percent in 1946.

Sales of light fuel oil, including Diesel grades, to smelters, mines, and manufacturing plants showed increases in all areas of the country except in the New England and Middle Atlantic States. In New England the demand dropped by 14 percent from 1,204,000 barrels in 1945 to 1,032,000 in 1946, while the decline in the Middle Atlantic States was relatively unimportant - 7,705,000 barrels in 1946 compared with 7,786,000 in 1945. Industrial plants operating in the South Atlantic States bought 42 percent more light fuel oil in 1946 - 1,290,000 barrels compared with 907,000 in 1945. The gain in demand for light fuel oil in this group of States in 1946 was sufficient to lift the Atlantic Coast total to 10,027,000 barrels or to a net gain of one percent for the entire area. About one third of the distillate fuel oil going to manufacturing industries is reported from the North Central States and requirements in that area increased by 15 percent or from 6,414,000 barrels in 1945 to 7,354,000 in 1946. A similar demand for distillate grades of fuel oil in the South Central States increased by 24 percent or from 1,564,000 barrels in 1945 to 1,931,000 in 1946, and for the Pacific Coast area requirements rose from 980,000 barrels in 1945 to 1,690,000 in 1946 - an outstanding gain of 72 percent.

Smelters, mines, and manufacturing establishments in the Atlantic and Pacific Coast areas purchased more heavy fuel oil in 1946 than in 1945, while there was a decline in demand for other parts of the country, as these industries settled to a peacetime basis of operations. Sales of residual fuel oil to plants in the East Coast area, where the volume rose from 50 percent of the national total in 1945 to over 54 percent in 1946, increased by 14 percent from 45,343,000 barrels in 1945 to 51,807,000 in 1946. All parts of the East Coast reported larger sales of heavy fuel oil to manufacturing establishments in 1946, however the more important gains were indicated for the New England and Middle Atlantic areas. Heavy industries on the West Coast required 17,416,000 barrels of residual fuel oil in 1946 or 12 percent more than the 1945 total of 15,523,000 barrels. Sales of heavy industrial fuel in the North Central States declined by 16 percent from 26,211,000 barrels in 1945 to 22,123,000 in 1946, whereas the drop in demand in the South Central States was unimportant or from 3,306,000 barrels in 1945 to 3,280,000 in 1946.

Heating oils.- About 59 percent of all distillate fuel oils was sold for space heating in 1946, compared with a 52-percent share of the total market in 1945 and the volume of sales for light heating oils (grades 1-4) increased by 18 percent from 121,342,000 barrels in 1945 to 142,837,000 in 1946. Heavy fuel oils sold for heating purposes (grades 5 and 6) rose from 8 percent of all domestic requirements in 1945 to 10 percent of the total in 1946 and the quantity was up 15 percent from 43,874,000 barrels in 1945 to 49,734,000 in 1946.

Light heating oils sold as No. 2 grade made up about 63 percent of all deliveries in both 1945 and 1946, while No. 1 grade increased from about 13 percent of the total in 1945 to over 14 percent in 1946. Heating oil sold as No. 3 satisfied about 23 percent of the light heating oil load in 1945 and 22 percent in 1946. Only small amounts of No. 4 grade are reported and the quantity dropped from about 2 percent of the total in 1945 to less than one percent in 1946. As to the residual heating oils, No. 5 grade is sold up to about 40 percent of the total, and No. 6 makes up the balance.

Important gains in sales of light heating oils were reported in all parts of the country in 1946. Deliveries in the East Coast area accounted for about 56 percent of the total in 1946 and the volume of sales increased by 15 percent from 69,555,000 barrels in 1945 to 79,790,000 in 1946. There was a 13-percent rise in the demand for distillate heating oils in both New England and the Middle Atlantic States and an even greater gain for the South Atlantic area - 36 percent. About a quarter of the distillate heating oils are consumed in the North Central States and deliveries there were 20 percent higher in 1946 than in 1945. The gain for the Pacific Coast marketing area was 25 percent in 1946 and the quantity represented 12 percent of national sales for the year. Only small amounts of light fuel oils are used in the Rocky Mountain region for space heating, however there was a substantial gain in 1946.

More heavy fuel oils were used in all areas for space heating in 1946 except in the South Central States, where the demand dropped off by 6 percent. More than half (56 percent) of the residual heating oils are reported from the Atlantic Coast States and the quantity for the area rose by 13 percent from 24,515,000 barrels in 1945 to 27,731,000 in 1946. All parts of the East Coast showed gains in the market for heavy heating oils in 1946 - 13 percent for both the New England and South Atlantic States and 11 percent for the Middle Atlantic section. The quantity of residual heating oils reported for the Pacific Coast in 1946 was 26 percent over the 1945 volume, however for the North Central States, where similar amounts are sold (about one-fifth of the national total) the gain was only 7 percent.

Range oil.- Large quantities of kerosine and some No. 1 fuel oil are sold for fuel for use in range burners. These small non-automatic burners are popular in some parts of the country for space and hot water heating and for cooking. Sales of range fuel reported for 1946 totaled 60,564,000 barrels, a gain of 19 percent over 1945 requirements of 51,021,000 barrels. Kerosine delivered for this purpose made up 86 percent of the total in 1946 compared with an 85-percent share in 1945. The volume for kerosine increased by 20 percent from 43,540,000 barrels in 1945 to 52,105,000 in 1946, while the No. 1 fuel oil delivered for range burners was 7,481,000 barrels in 1945 and 8,459,000 in 1946.

Nearly 40 percent of range fuel sales are reported from the New England States and deliveries in that area increased 17 percent in 1946 over 1945. About a quarter of all range oil deliveries are credited to the Middle Atlantic area and an increased demand of 22 percent was indicated for 1946 compared with 1945. The North Central States are the only other section where large quantities of range fuel are required, and the consumption in that part of the country in 1946 was 15 percent above the 1945 total.

U.S. Navy, Army, and Coast Guard.- Sales of fuel oil for military consumption dropped sharply during 1946, the first full year of peace. The total for light grades, including Diesel fuel, declined by 69 percent from 30,366,000 barrels in 1945 to 9,335,000 in 1946, while residual fuel oils credited to the armed forces shrunk by 63 percent from 97,485,000 barrels in 1945 to 35,822,000 in 1946. The extent of the decline in military needs for fuel oil can be better understood when it is observed that the distillate grades sold for this purpose represented 13 percent of all deliveries in 1945 and only 4 percent in 1946 and the corresponding share for heavy fuel oils dropped from 18 percent in 1945 to 7 percent of the total market in 1946.

Diesel fuel sold to the U.S. Navy, Army, and Coast Guard declined by 72 percent from 22,950,000 barrels in 1945 to 6,439,000 in 1946. Much lower deliveries of this grade were reported from all sections of the country in 1946, except in the South Atlantic States where there was a gain, but the quantity involved was relatively unimportant. The military forces purchase about half of their requirements of Diesel fuel in the South Central States, however the demand there dropped by 77 percent in 1946 compared with 1945. Other areas supplying important quantities of Diesel fuel for the purpose are the Pacific Coast and Middle Atlantic States, where deliveries slumped by 47 percent and 74 percent, respectively, in 1946 over 1945. Refineries in the Rocky Mountain States supplied appreciable amounts of Diesel fuel for military use in both 1944 and 1945, however the quantity dropped to almost nil in 1946.

Deliveries of Navy grade fuel oil dropped from 68,873,000 barrels in 1945 to 21,059,000 in 1946 - a decline of 69 percent, while the total for other residual fuel oil was down by 48 percent from 28,612,000 barrels in 1945 to 14,763,000 in 1946. Curtailed sales of these heavy fuel oils to the armed forces were evident in all sections of the country. About half the quantities are reported from the Pacific Coast and the demand there fell off by 63 percent in 1946. A quarter of the requirements for this type of fuel oil are supplied from the South-Central States and sales in that area were down by 69 percent in 1946 compared with 1945. Deliveries of heavy fuel oil for military consumption on the Atlantic Coast in 1946 were 58 percent below the 1945 volume.

Oil company fuel.- Oil Companies use only small quantities of distillate fuels, including Diesel oil, in their operations - less than one percent of the total for all demands - however the consumption increased by two-thirds from 1,138,000 barrels in 1945 to 1,890,000 in 1946. Most of the liquid fuel used by the petroleum industry consists of residual grades plus some crude oil, and the demand rose slightly from 57,336,000 barrels in 1945 to 58,054,000 in 1946. These quantities represented 11 percent and 12 percent, respectively, of total consumption of all heavy fuel oils in the two years. The increase in the use of oil fuel by oil companies in 1946 follows rather closely the upward changes in their activities, as measured by crude production and crude runs to stills, both of which rose by about one percent in volume in 1946 over 1945.

The oil companies operating in the East Coast used 17,891,000 barrels of heavy oil as fuel in 1946 or 5 percent more than reported in 1945, the increase in fuel consumption reflecting both higher crude production and a greater volume of runs for the area. There was little change in the quantity of heavy fuel oil, including crude petroleum, (16,390,000 barrels in 1946 compared with 16,476,000 in 1945) used by oil companies in the South Central States in 1946, although production of crude was up by nearly 2 percent and runs were 4 percent higher for the year. Operations of oil companies on the West Coast were at a lower level in 1946 than in 1945 as measured by both the production of crude and runs to stills and as a result the need for heavy oil and crude as fuel declined by 9 percent from 10,344,000 barrels in 1945 to 9,439,000 in 1946. About a fifth of the heavy oil used in the petroleum industry is credited to the North Central States and the quantity consumed there rose by 7 percent from 11,327,000 barrels in 1945 to 12,079,000 in 1946. It can be added that both field and refinery activities showed a gain in this area in the latter year. Oil companies in the Rocky Mountain States report relatively un-important quantities of heavy oil as fuel, however the total increased from 2,178,000 barrels in 1945 to 2,255,000 in 1946, as both production and runs mounted noticeably in the latter period.

Oil companies burned 3, 697,000 barrels of crude petroleum as fuel in 1946 compared with 3,629,000 in 1945. The larger share of the 1946 total was reported from California, Texas, Louisiana, Missouri, Oklahoma and Wyoming.

Diesel fuel.- The drop in the sales of Diesel fuel for a second consecutive year from 70,230,000 barrels in 1944 to 66,412,000 in 1945 and to 54,063,000 in 1946 was a net loss and entirely due to shrinking military demands as civilian requirements mounted sharply in the same periods. Purchases of Diesel fuel by the armed forces declined with the ending of the war from 33,000,000 barrels in 1944 to 22,950,000 in 1945 and then by 72 percent to 6,439,000 barrels in 1946, while conversely, quantities for civilian consumption have continued to expand from 37,230,000 barrels in 1944 to 43,462,000 in 1945 and then to 47,624,000 barrels in 1946. Military needs on a percentage basis have dropped from 47 percent of the total in 1944 to 35 percent in 1945 and then down to 12 percent in 1946, while the percentage proportions for civilian requirements have ascended correspondingly.

Diesel fuel sold to the railroads increased from 12,036,000 barrels or 18 percent of all demands in 1945 to 14,979,000 or 28 percent of the Diesel total in 1946. The quantity of Diesel fuel reported for the bunkering of vessels declined from 13,374,000 barrels in 1945 to 11,135,000 in 1946, however the relative share for this trade remained at about 21 percent of the total for both years. Diesel oil credited to gas and electric power plants rose from 3,067,000 barrels in 1945 to 3,793,000 in 1946 and the 1946 quantity represented 7 percent of total requirements. Smelters, mines, and manufacturing plants purchased 7,421,000 barrels of Diesel fuel in 1946, or about a quarter more than in 1945 and the relative share for this group of industries increased from 9 percent of the Diesel total in 1945 to 14 percent in 1946. Diesel fuel reported under "Miscellaneous uses" rose by 14 percent from 8,731,000 barrels in 1945 to 9,950,000 in 1946.

Increased sales of Diesel fuel for civilian consumption were evident in all parts of the country except for the Middle Atlantic States where the total declined from 10,117,000 barrels in 1945 to 8,030,000 in 1946. This shrinkage in demand for Diesel oil in this area is the net result of the lower vessel demand in 1946, which dropped by nearly 40 percent while all other civilian requirements showed gains for the year. Non-military demands for Diesel fuel registered important increases varying from 20 to 24 percent in all other areas of the country except the Pacific Coast where the gain in requirements was 12 percent and for the Rocky Mountain States, where a 15 percent rise was indicated.

Tractor fuel.- Deliveries of distillate oil for tractor fuel increased by 8 percent from 4,023,000 barrels in 1945 to 4,328,000 in 1946. These amounts represented nearly 2 percent of all distillate oil sales for both years. About half of this tractor fuel is sold in the North Central States where the quantity reported increased from 2,166,000 barrels in 1945 to 2,214,000 in 1946. Important sales of tractor fuel are also made in the South Central area and there the demand rose from 1,277,000 barrels in 1945 to 1,379,000 in 1946. The market of distillate tractor fuel is not relatively important in other parts of the country.

Kerosine.- A nominal gain of 5 percent in kerosine sales in 1945 turned sharply upward to an 18-percent increase in 1946, when deliveries totaled 88,090,000 barrels compared with 74,976,000 in 1945. This active market in 1946 was due largely to the mounting demand for kerosine for use as range fuel, the total of which rose by 20 percent from 43,540,000 barrels in 1945 to 52,105,000 in 1946. Comparatively kerosine reported as tractor fuel increased by only 12 percent (7,544,000 barrels in 1946 against 6,747,000 in 1945) and the quantity delivered for various miscellaneous uses of 28,441,000 barrels in 1946 was 15 percent above the 1945 total of 24,689,000 barrels. Stated in another way, over 59 percent of all kerosine sold in 1946 was credited to range fuel compared with a 58-percent share in 1945; tractor fuel in 1946 dropped fractionately from a 9-percent proportion in 1945; while kerosine for miscellaneous uses made up 32 percent of all deliveries in 1946 and 33 percent in 1945.

Sales of kerosine and range oil, 1942-1946

Uses	1942	1943	1944	1945	1946	Percent of change in 1946 compared with 1945
Kerosine sold as range oil.	39,945	38,221	41,017	43,540	52,105	19.7
Tractor fuel..............	5,137	5,869	6,143	6,747	7,544	11.8
All other uses............	23,608	23,725	24,054	24,689	28,441	15.2
Total United States...	68,690	67,815	71,214	74,976	88,090	17.5
Exports and shipments......	2,576	4,752	4,888	6,180	8,559	38.5
	71,266	72,567	76,102	81,156	96,649	19.1
Kerosine sold as range oil.	39,945	38,221	41,017	43,540	52,105	19.7
No. 1 fuel oil sold as range oil...............	4,978	5,876	6,619	7,481	8,459	13.1
Total range oil......	44,923	44,097	47,636	51,021	60,564	18.7

More kerosine was sold in all parts of the country in 1946, except in the Pacific Coast area, where the demand is not of large volume. Over a quarter of the kerosine was reported from the New England States and these deliveries increased by 18 percent from 19,898,000 barrels in 1945 to 23,433,000 in 1946. Kerosine in that area is mostly used for fuel in range burners and the quantity sold for the purpose increased from 19,167,000 barrels in 1945 to 22,603,000 in 1946. The Middle Atlantic States rate secondly as a market for kerosine and there requirements of 19,925,000 barrels in 1946 were 17 percent over the 1945 total of 17,088,000 barrels. As in the New England States most of this kerosine is used as fuel in range burners and the quantities so consumed were 12,841,000 barrels in 1945 and 15,191,000 in 1946. Deliveries of kerosine in the North Central States were 18,959,000 barrels in 1946 or 17 percent over the 1945 quantity of 16,264,000 barrels and the range fuel proportion in these quantities increased from 5,131,000 barrels in 1945 to 6,369,000 in 1946. Kerosine is also sold in fairly large quantities in the South Central States (12,135,000 barrels in 1945 and 14,755,000 in 1946) and in the South Atlantic States (6,557,000 barrels in 1945 and 7,957,000 in 1946) however the larger shares of the respective demands are for tractor fuel and miscellaneous uses and less proportionately for range burner fuel.

Very little kerosine is used as tractor fuel outside of the North Central States, where the quantities were 3,589,000 barrels in 1945 and 3,993,000 in 1946 and the South Central States, where sales for this purpose were 2,224,000 barrels in 1945 and 2,510,000 in 1946.

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FUEL OIL SALES BY STATES AND PRINCIPAL USES IN 1946

Sales of distillate and residual fuel oils in 1946
by States and uses
(Thousands of barrels of 42 gallons)

32652

	Railroads						Vessels (including tankers)					
	Distillate fuels				Residual		Distillate fuels				Residual	
	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945
California........	1,368	8	1,376	1,449	24,553	28,872	1,948	108	2,056	1,959	14,461	26,607
Oregon...........	97	1	98	79	7,722	8,800	92	-	92	177	746	1,832
Washington........	337	4	341	281	1,789	1,741	345	1	346	412	1,588	2,801
Arizona...........	174	1	175	111	1,473	1,638	-	-	-	-	-	-
Nevada............	34	-	34	16	5,430	6,154	-	-	-	-	-	-
Idaho.............	62	46	108	95	310	376	-	-	-	-	-	-
Montana...........	411	64	475	468	5,419	5,271	-	-	-	-	-	-
Wyoming...........	85	58	143	131	1,961	2,083	-	-	-	-	-	-
Utah..............	121	31	152	134	435	467	-	-	-	-	-	-
Colorado..........	324	45	369	348	699	679	-	-	-	-	-	-
New Mexico........	253	12	265	240	896	967	-	-	-	-	-	-
North Dakota......	89	7	96	77	551	602	-	-	-	-	-	-
South Dakota......	55	1	56	42	146	155	-	-	-	-	-	-
Minnesota.........	334	47	381	279	166	144	1	2	3	2	-	-
Nebraska..........	387	63	450	453	133	177	-	-	-	-	-	-
Iowa..............	765	26	791	497	424	318	-	9	9	4	-	-
Wisconsin.........	185	18	203	188	40	51	-	1	1	2	1	1
Illinois..........	1,030	172	1,202	929	316	398	141	3	144	172	39	72
Indiana...........	228	64	292	216	87	95	16	6	22	76	89	316
Michigan..........	178	96	274	243	49	54	2	1	3	48	26	39
Ohio..............	504	101	605	537	57	66	29	1	30	27	79	81
Kentucky..........	191	33	224	213	86	96	103	-	103	122	37	61
Tennessee.........	266	74	340	258	319	350	110	-	110	82	218	528
Missouri..........	405	83	488	462	1,522	1,744	7	3	10	9	73	46
Kansas............	685	143	828	587	7,317	7,697	-	-	-	-	-	-
Texas.............	1,178	338	1,516	1,358	25,010	29,743	2,287	221	2,508	2,275	21,254	17,019
Oklahoma..........	320	50	370	253	5,600	5,679	-	-	-	6	-	-
Arkansas..........	307	67	374	212	2,133	1,991	71	-	71	53	-	-
Louisiana.........	274	79	353	285	3,334	3,677	958	9	967	575	7,261	2,395
Mississippi.......	83	7	90	75	107	105	11	-	11	10	4	45
Alabama...........	259	24	283	223	155	167	80	-	80	115	2,068	2,038

Sales of distillate and residual fuel oils in 1946
by States and uses - Continued
(Thousands of barrels of 42 gallons)

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	Railroads						Vessels (including tankers)					
	Distillate fuels				Residual		Distillate fuels				Residual	
	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945
Maine..............	61	37	98	43	-	-	25	2	27	34	167	322
New Hampshire......	3	3	6	5	-	-	1	-	1	-	-	-
Vermont............	7	3	10	8	-	-	-	-	-	-	-	-
Massachusetts......	390	12	402	280	100	14	296	53	349	406	1,574	3,372
Rhode Island.......	10	-	10	12	-	9	4	3	7	5	70	25
Connecticut........	353	27	380	319	102	88	12	-	12	33	2	31
New York...........	526	194	720	494	256	229	302	85	387	1,200	2,871	3,055
New Jersey.........	162	55	217	149	256	257	2,616	48	2,664	4,392	18,226	24,721
Pennsylvania.......	421	161	582	496	183	157	424	335	759	500	3,608	3,337
Delaware...........	1	1	2	1	2	3	-	8	8	9	11	5
Maryland...........	286	77	363	213	36	33	566	2	568	588	6,510	5,219
Dist. of Columbia..	122	18	140	163	-	-	-	-	-	-	6	7
Virginia...........	264	48	312	255	116	58	233	2	235	280	4,797	4,665
West Virginia......	3	9	12	18	6	9	4	-	4	5	52	72
North Carolina.....	465	42	507	359	8	-	14	-	14	10	83	253
South Carolina.....	268	24	292	272	7	-	27	-	27	31	943	21
Georgia............	221	68	289	181	20	7	39	-	39	117	655	611
Florida............	427	49	476	461	974	1,076	371	26	397	394	666	768
Total U. S. 1946...	14,979	2,591	17,570	14,458	100,305	112,297	11,135	929	12,064	14,130	88,185	100,365
Total U. S. 1945...	12,036	2,422	14,458	-	112,297	-	13,374	756	14,130	-	100,365	-

Sales of distillate and residual fuel oils in 1946
by States and uses
(Thousands of barrels of 42 gallons)

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	Gas and electric power plants						Smelters, mines, and manufacturing industries					
	Distillate fuels				Residual		Distillate fuels				Residual	
	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945
California	3	-	3	102	10,177	2,900	389	745	1,134	579	9,760	7,987
Oregon..........	570	2	572	204	1,670	2,103	243	1	244	112	1,731	1,705
Washington.....	166	-	166	157	1,107	878	177	6	183	176	4,823	4,577
Arizona.........	30	13	43	37	283	147	57	7	64	72	819	904
Nevada..........	11	-	11	9	30	24	64	1	65	41	283	350
Idaho...........	7	-	7	4	-	-	31	29	60	51	133	136
Montana.........	8	4	12	13	-	-	16	43	59	66	83	22
Wyoming.........	17	8	25	11	12	16	11	18	29	19	110	185
Utah............	34	-	34	30	7	-	31	16	47	29	20	27
Colorado........	90	26	116	71	48	42	32	70	102	38	374	407
New Mexico......	14	51	65	36	84	80	14	4	18	13	31	16
North Dakota....	41	22	63	50	-	-	22	-	22	24	6	2
South Dakota....	105	12	117	112	80	45	5	-	5	6	64	30
Minnesota.......	136	30	166	136	210	153	148	174	322	197	337	354
Nebraska........	90	6	96	82	166	162	15	15	30	41	50	70
Iowa	338	78	416	344	319	266	40	38	78	64	111	134
Wisconsin.......	100	108	208	139	519	437	205	295	500	452	452	612
Illinois........	145	66	211	179	449	123	517	872	1,389	1,245	5,022	5,732
Indiana.........	76	204	280	161	225	269	201	546	747	573	6,691	6,934
Michigan........	142	86	228	193	208	149	862	756	1,618	1,411	2,433	3,366
Ohio............	41	105	146	84	121	48	367	1,640	2,007	1,799	6,401	8,509
Kentucky........	29	34	63	78	6	3	208	72	280	281	434	245
Tennessee.......	83	14	97	34	2	108	127	229	356	321	122	223
Missouri........	311	55	366	385	193	214	239	333	572	253	1,294	1,470
Kansas..........	198	72	270	200	340	318	72	92	164	130	285	282
Texas...........	8	2	10	4	445	375	487	87	574	589	416	247
Oklahoma........	38	5	43	31	218	298	12	8	20	20	161	138
Arkansas........	69	-	69	55	16	25	42	33	75	80	77	136
Louisiana.......	56	26	82	77	179	249	84	167	251	254	173	223
Mississippi.....	28	17	45	38	15	26	42	17	59	52	53	94
Alabama.........	46	7	53	54	13	16	156	60	216	186	821	716

Salés of distillate and residual fuel oils in 1946
by States and uses - Continued
(Thousands of barrels of 42 gallons)

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	Gas and electric power plants						Smelters, mines and, manufacturing industries					
	Distillate fuels				Residual		Distillate fuels				Residual	
	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945	Diesel fuel	Other light	Total 1946	Total 1945	Total 1946	Total 1945
Maine..........	9	20	29	25	545	276	8	31	39	34	1,325	912
New Hampshire..	35	60	95	72	145	87	1	24	25	21	380	219
Vermont.........	-	41	41	34	44	19	11	60	71	50	78	56
Massachusetts..	71	524	595	367	2,458	1,650	21	377	398	463	5,021	4,119
Rhode Island...	-	77	77	23	2,155	1,200	5	142	147	190	2,228	1,861
Connecticut....	-	426	426	285	2,554	1,373	46	306	352	446	2,515	1,614
New York.......	18	1,592	1,610	1,378	8,045	5,997	228	1,960	2,188	2,021	5,570	5,004
New Jersey.....	4	1,452	1,456	295	5,415	3,216	718	1,300	2,018	2,158	6,651	5,568
Pennsylvania...	114	796	910	259	3,430	3,033	596	2,561	3,157	3,260	15,086	13,563
Delaware.......	11	11	22	14	10	10	24	23	47	54	837	966
Maryland.......	37	114	151	36	1,374	765	72	207	279	281	4,383	4,463
D.C.	2	31	33	41	123	119	2	14	16	12	144	71
Virginia.......	87	363	450	328	258	157	57	272	329	182	266	288
West Virginia..	9	-	9	11	1	-	65	30	95	71	367	663
North Carolina.	84	150	234	206	18	-	125	17	142	85	368	178
South Carolina.	59	23	82	72	79	58	86	43	129	67	921	540
Georgia........	45	9	54	65	499	443	105	65	170	154	1,374	1,296
Florida........	178	46	224	203	6,626	6,655	335	90	425	348	4,093	3,962
Total U.S.1946	3,793	6,788	10,581	6,824	50,921	34,532	7,421	13,896	21,317	19,071	95,177	91,176
Total U.S.1945	3,067	3,757	6,824	-	34,532	-	6,025	13,046	19,071	-	91,176	-

Sales of heating oils in 1946
by States and grades
(Thousands of barrels of 42 gallons)

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	Distillate grades						Residual grades			
	No. 1	No. 2	No. 3	No. 4	Total 1946	Total 1945	No. 5	No. 6	Total 1946	Total 1945
California..........	4,023	-	3,475	-	7,498	6,128	4,955	705	5,660	4,562
Oregon..............	1,451	-	1,303	-	2,754	2,127	1,588	690	2,278	1,750
Washington..........	2,985	-	2,587	-	5,572	4,194	2,091	379	2,470	1,950
Arizona.............	349	-	232	-	581	507	28	-	28	17
Nevada..............	285	-	186	-	471	519	68	5	73	71
Idaho...............	225	59	90	2	376	246	-	-	-	2
Montana.............	244	115	77	-	436	315	14	43	57	50
Wyoming.............	56	49	36	-	141	109	15	2	17	4
Utah................	97	13	198	8	316	176	-	-	-	2
Colorado............	143	183	156	-	482	353	2	-	2	-
New Mexico..........	32	66	12	-	110	64	-	-	-	-
North Dakota........	121	197	81	1	400	299	-	-	-	-
South Dakota........	218	288	96	2	604	407	2	11	13	10
Minnesota...........	910	3,160	1,077	25	5,172	4,116	259	103	362	408
Nebraska............	410	407	861	4	1,682	1,537	115	18	133	151
Iowa................	461	1,487	365	2	2,315	1,897	118	44	162	154
Wisconsin...........	447	2,167	1,470	14	4,098	3,335	395	194	589	539
Illinois............	1,257	5,849	6,796	254	14,156	12,371	2,265	2,912	5,177	4,866
Indiana.............	402	882	516	51	1,851	1,454	407	218	625	580
Michigan............	1,307	2,208	1,614	68	5,197	4,223	1,039	990	2,029	1,807
Ohio................	733	223	728	19	1,703	1,490	150	47	197	190
Kentucky............	70	147	91	-	308	235	25	90	115	119
Tennessee...........	20	169	72	-	261	171	-	95	95	85
Missouri............	529	1,592	1,921	48	4,090	3,646	1,103	411	1,514	1,621
Kansas..............	236	173	80	-	489	438	124	90	214	239
Texas...............	17	656	203	152	1,028	812	-	75	75	73
Oklahoma............	21	25	27	1	74	68	2	-	2	1
Arkansas............	2	64	10	-	76	69	-	55	55	50
Louisiana...........	50	152	72	7	281	249	-	50	50	46
Mississippi.........	14	9	26	-	49	42	-	-	-	-
Alabama.............	86	62	128	-	276	190	7	4	11	12

Sales of heating oils in 1946
by States and grades - Continued
(Thousands of barrels of 42 gallons)

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	Distillate grades						Residual grades			
	No.1	No.2	No.3	No.4	Total 1946	Total 1945	No.5	No.6	Total 1946	Total 1945
Maine..............	42	1,036	1	-	1,079	855	1	181	182	163
New Hampshire......	29	773	7	-	809	726	7	235	242	229
Vermont............	1	551	13	-	565	518	11	70	81	67
Massachusetts......	465	9,701	251	-	10,417	9,164	666	3,931	4,597	3,828
Rhode Island.......	52	2,355	302	-	2,709	2,462	8	703	711	579
Connecticut........	194	4,348	583	20	5,145	4,587	543	1,056	1,599	1,441
New York...........	985	24,066	1,979	276	27,306	24,134	1,279	9,083	10,362	9,122
New Jersey.........	519	12,338	1,226	307	14,390	12,750	985	3,050	4,035	3,642
Pennsylvania.......	137	5,363	1,650	42	7,192	6,164	1,293	2,303	3,596	3,383
Delaware...........	30	345	105	-	480	408	-	85	85	76
Maryland...........	56	3,381	203	1	3,641	3,065	145	706	851	783
D. C.	41	1,729	-	-	1,770	1,565	31	696	727	641
Virginia...........	175	1,194	15	-	1,384	1,104	4	183	187	166
West Virginia......	15	40	50	-	105	96	-	-	-	-
North Carolina.....	103	491	479	-	1,073	751	-	20	20	18
South Carolina.....	37	269	42	-	348	231	8	-	8	6
Georgia............	31	265	189	-	485	352	17	41	58	43
Florida............	162	525	205	-	892	623	25	365	390	328
Total U. S. 1946 ..	20,275	89,172	31,886	1,304	142,637	121,342	19,795	29,939	49,734	43,874
Total U.S. 1945 ...	15,554	75,824	27,810	2,154	121,342	-	17,404	26,470	43,874	-

Sales of distillate and residual fuel oils in 1946
by States and uses
(Thousands of barrels of 42 gallons)

	No.1 Fuel oil sold as range oil		U.S. Navy, Army, and Coast Guard							
	Total		Distillate fuels				Residual			
	1946	1945	Diesel fuel	Other light	Total 1946	Total 1945	Navy Grade	Other residual	Total 1946	Total 1945
California..........	-	-	1,183	443	1,626	2,975	13,035	4,008	17,043	46,823
Oregon	-	-	101	47	148	126	-	220	220	673
Washington..........	-	-	33	102	135	585	135	465	600	1,117
Arizona.............	-	-	3	12	15	12	-	-	-	-
Nevada..............	-	-	12	13	25	28	-	-	-	18
Idaho...............	38	36	4	6	10	2	-	6	6	-
Montana.............	201	188	-	-	-	489	195	287	482	686
Wyoming.............	39	30	-	-	-	747	293	982	1,275	1,621
Utah................	39	11	20	24	44	162	-	17	17	2
Colorado............	188	155	1	1	2	24	-	-	-	-
New Mexico..........	30	21	-	-	-	105	-	6	6	12
North Dakota........	106	42	-	-	-	-	-	-	-	-
South Dakota........	44	42	-	-	-	-	-	-	-	-
Minnesota...........	582	545	-	-	-	-	-	-	-	-
Nebraska............	83	93	-	12	12	40	-	-	-	-
Iowa................	437	688	-	4	4	1	-	5	5	-
Wisconsin...........	703	649	-	37	37	5	-	-	-	-
Illinois............	1,796	1,523	6	11	17	160	-	46	46	102
Indiana.............	308	290	38	14	52	46	-	15	15	42
Michigan............	853	797	5	2	7	115	-	43	43	45
Ohio................	121	110	10	12	22	47	-	37	37	59
Kentucky............	1	1	6	4	10	21	1	-	1	6
Tennessee...........	49	47	-	5	5	27	-	-	-	242
Missouri............	451	310	-	-	-	19	-	8	8	246
Kansas..............	65	62	-	-	-	309	-	-	-	24
Texas...............	21	19	2,956	1,112	4,068	14,017	4,325	3,928	8,253	23,687
Oklahoma............	12	10	-	-	-	104	-	-	-	-
Arkansas............	101	85	5	1	6	9	-	1	1	52
Louisiana...........	33	18	97	2	99	1,674	339	324	663	5,077
Mississippi.........	12	14	9	3	12	9	-	1	1	1
Alabama.............	59	51	18	19	37	22	10	11	21	65

Sales of distillate and residual fuel oils in 1946
by States and uses - Continued
(Thousands of barrels of 42 gallons)

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	No.1 Fuel oil sold as range oil		U.S. Navy, Army, and Coast Guard							
			Distillate fuels				Residual			
	Total									
	1946	1945	Diesel fuel	Other light	Total 1946	Total 1945	Navy Grade	Other residual	Total 1946	Total 1945
Maine..................	127	120	7	-	7	16	-	5	5	14
New Hampshire..........	46	34	1	-	1	11	-	-	-	-
Vermont................	-	10	-	-	-	-	-	-	-	-
Massachusetts..........	458	442	147	28	175	467	2	368	370	935
Rhode Island...........	101	84	8	13	21	95	-	10	10	228
Connecticut............	223	344	222	-	222	173	274	7	281	319
New York...............	342	128	300	12	312	84	-	1,162	1,162	1,626
New Jersey.............	231	211	159	9	168	4,891	1,056	527	1,583	6,299
Pennsylvania...........	255	11	515	703	1,218	1,482	608	995	1,603	4,223
Delaware...............	-	1	-	1	1	8	-	-	-	24
Maryland...............	8	5	75	26	101	653	105	318	423	491
District of Columbia...	10	5	29	21	50	65	15	30	45	7
Virginia...............	41	51	128	171	299	256	547	119	666	451
West Virginia..........	-	-	2	-	2	3	-	-	-	73
North Carolina.........	31	27	36	14	50	41	-	87	87	19
South Carolina.........	68	46	4	1	5	32	-	17	17	42
Georgia................	80	77	24	12	36	40	-	218	218	300
Florida................	66	48	275	49	324	169	119	490	609	1,834
Total U.S. in 1946.....	8,459	7,481	6,439	2,946	9,385	30,366	21,059	14,763	35,822	97,485
Total U.S. in 1945.....	7,481	-	22,950	7,416	30,366	-	68,873	28,612	97,485	-

Sales of distillate and residual fuel oils in 1946, by States and uses

(Thousands of barrels of 42 gallons)

	Oil company fuel								Miscellaneous uses						
	Distillate fuels				Residual fuels				Distillate fuels					Residual	
	Diesel fuel	Other light	Total 1946	Total 1945	Residual grades	Crude oil	Total 1946	Total 1945	Diesel fuel	Other light	Tractor fuel	Total 1946	Total 1945	Total 1946	Total 1945
California.....	95	61	156	63	7,667	1,418	9,085	9,983	3,159	791	41	3,991	3,498	1,300	1,780
Oregon.........	1	1	2	1	123	13	136	124	461	221	-	682	393	159	218
Washington.....	11	1	12	11	198	20	218	237	662	247	31	940	770	261	314
Arizona........	-	-	-	-	-	-	-	-	188	60	-	248	222	15	-
Nevada.........	-	-	-	-	-	-	-	-	122	28	10	160	102	7	9
Idaho..........	-	-	-	-	37	-	37	42	168	6	14	188	163	4	1
Montana........	-	-	-	-	229	1	230	223	104	7	87	198	206	3	1
Wyoming........	1	1	2	43	779	178	957	790	71	8	79	158	141	33	11
Utah...........	1	-	1	-	842	-	842	895	167	7	32	206	171	3	3
Colorado.......	-	-	-	1	94	-	94	130	113	50	95	258	181	20	4
New Mexico.....	2	-	2	1	76	19	95	98	56	24	-	80	83	-	11
North Dakota...	-	-	-	2	-	1	1	-	57	23	149	229	168	14	19
South Dakota...	-	1	1	1	-	-	-	-	14	37	31	82	81	3	1
Minnesota......	-	5	5	6	6	-	6	9	56	278	155	489	377	8	38
Nebraska.......	-	3	3	2	8	-	8	8	51	140	169	360	330	1	13
Iowa...........	1	3	4	8	-	-	-	2	36	278	781	1,095	1,130	8	8
Wisconsin......	-	9	9	18	-	-	-	11	86	165	96	347	286	9	20
Illinois.......	39	12	51	66	3,868	113	3,981	3,664	339	146	184	669	529	100	135
Indiana........	1	6	7	7	3,979	98	4,077	3,853	71	42	158	271	263	16	29
Michigan.......	8	22	30	31	787	-	787	860	119	52	161	332	276	185	162
Ohio...........	1	53	54	26	2,762	145	2,907	2,557	217	21	128	366	294	18	24
Kentucky.......	5	-	5	5	305	-	305	353	69	25	70	164	216	21	43
Tennessee......	3	-	3	4	7	-	7	10	184	22	132	338	387	50	4
Missouri.......	2	6	8	3	231	224	455	535	72	182	123	377	277	105	95
Kansas.........	17	18	35	22	1,684	94	1,778	2,000	91	137	203	431	367	14	24
Texas..........	65	53	118	112	10,007	717	10,724	10,330	625	204	14	843	538	289	284
Oklahoma.......	1	2	3	5	1,942	201	2,143	2,164	112	67	-	179	179	33	34
Arkansas.......	-	-	-	13	43	1	44	46	128	138	325	591	558	5	21
Louisiana......	24	1	25	54	893	322	1,215	1,374	327	65	279	671	639	177	375
Mississippi....	1	-	1	1	4	14	18	15	183	130	185	498	390	96	219
Alabama........	1	-	1	1	13	-	13	12	193	25	250	468	413	78	105

Sales of distillate and residual fuel oils in 1946,
by States and uses - Continued
(Thousands of barrels of 42 gallons)

32652

	Oil company fuel								Miscellaneous uses						
	Distillate fuels				Residual fuels				Distillate fuels					Residual	
	Diesel fuel	Other light	Total 1946	Total 1945	Residual grades	Crude oil	Total 1946	Total 1945	Diesel fuel	Other light	Tractor fuel	Total 1946	Total 1945	Total 1946	Total 1945
Maine........	-	4	4	3	28	-	28	27	26	4	-	30	19	6	4
New Hampshire	-	2	2	2	-	-	-	-	14	2	-	16	8	1	1
Vermont.......	-	2	2	1	-	-	-	-	10	-	-	10	5	-	-
Massachusetts	1	18	19	13	581	-	581	583	47	5	-	52	38	10	12
Rhode Island..	-	16	16	172	372	-	372	246	9	-	-	9	6	30	20
Connecticut...	-	5	5	3	39	6	45	41	17	2	-	19	20	19	27
New York......	1	113	114	94	2,067	-	2,067	1,979	217	180	-	397	421	47	93
New Jersey....	2	705	707	142	6,038	14	6,052	5,355	225	125	-	350	976	596	214
Pennsylvania..	17	408	425	138	7,567	4	7,571	7,407	212	65	6	283	308	20	107
Delaware......	-	-	-	-	99	-	99	88	8	2	-	10	17	-	1
Maryland......	-	4	4	8	714	-	714	911	83	73	-	156	127	313	224
D. C.	-	2	2	2	7	-	7	5	13	5	-	18	10	21	16
Virginia......	-	3	3	2	72	-	72	66	78	13	2	93	154	40	92
West Virginia.	1	-	1	3	55	-	55	70	138	4	4	146	131	1	1
North Carolina	-	2	2	1	4	-	4	4	90	31	3	124	104	55	32
South Carolina	9	1	10	1	93	-	93	98	70	5	108	183	165	44	25
Georgia.......	7	-	7	1	5	94	99	90	111	169	124	404	311	95	31
Florida.......	28	1	29	35	32	-	32	41	281	58	99	438	377	695	295
Total U.S. 1946	346	1,544	1,890	1,128	54,357	3,697	58,054	57,336	9,950	4,369	4,328	18,647	16,825	5,028	5,200
Total U.S. 1945	229	899	1,128	-	53,707	3,629	57,336	-	8,731	4,072	4,022	16,825	-	5,200	-

Sales of distillate and residual fuel oils in 1945 - 1946, by States
(Thousands of barrels)

	Distillate fuels						Residual fuels					
	Diesel fuel		Other light		Total		Residual grades		Crude oil		Total	
	1946	1945	1946	1945	1946	1945	1946	1945	1946	1945	1946	1945
California.....	8,145	8,609	9,695	8,144	17,840	16,753	90,621	128,128	1,418	1,386	92,039	129,514
Oregon.........	1,565	998	3,027	2,221	4.592	3,219	14,649	17,205	13	-	14,662	17,205
Washington.....	1,731	2,018	5,964	4,568	7,695	6,586	12,836	13,615	20	-	12,856	13,615
Arizona........	452	393	674	568	1,126	961	2,618	2,706	-	-	2,618	2,706
Nevada.........	243	170	523	545	766	715	5,823	6,626	-	-	5,823	6,626
Idaho..........	272	221	515	376	787	597	490	557	-	-	490	557
Montana........	539	1,035	842	710	1,381	1,745	6,273	6,253	1	-	6,274	6,253
Wyoming........	185	911	352	320	537	1,231	4,187	4,688	178	22	4,365	4,710
Utah...........	374	423	465	280	839	703	1,324	1,396	-	-	1,324	1,396
Colorado.......	560	466	957	705	1,517	1,171	1,237	1,262	-	-	1,237	1,262
New Mexico.....	339	387	231	176	570	563	1,093	1,167	19	17	1,112	1,184
North Dakota...	209	143	707	519	916	662	571	623	1	-	572	623
South Dakota...	179	160	730	531	909	691	306	241	-	-	306	241
Minnesota......	675	500	6,445	5,158	7,120	5,658	1,089	1,104	-	2	1,089	1,106
Nebraska.......	543	550	2,173	2,028	2,716	2,578	491	581	-	-	491	581
Iowa...........	1,180	806	3,969	3,827	5,149	4,633	1,029	882	-	-	1,029	882
Wisconsin......	576	469	5,530	4,605	6,106	5,074	1,610	1,671	-	-	1,610	1,671
Illinois.......	2,217	1,793	17,418	15,381	19,635	17,174	15,017	14,980	113	112	15,130	15,092
Indiana........	631	562	3,199	2,524	3,830	3,086	11,727	12,017	98	101	11,825	12,118
Michigan.......	1,316	1,282	7,226	6,055	8,542	7,337	5,760	6,482	-	-	5,760	6,482
Ohio...........	1,169	934	3,885	3,480	5,054	4,414	9,672	11,527	145	7	9,817	11,534
Kentucky.......	611	618	547	554	1,158	1,172	1,005	886	-	40	1,005	926
Tennessee......	773	636	786	695	1,559	1,331	813	1,550	-	-	813	1,550
Missouri.......	1,036	995	5,326	4,369	6,362	5,364	4,940	5,738	224	233	5,164	5,971
Kansas.........	1,063	943	1,219	1,172	2,282	2,115	9,854	10,477	94	107	9,948	10,584
Texas..........	7,606	15,922	3,080	3,802	10,686	19,724	65,749	80,961	717	797	66,466	81,758
Oklahoma.......	483	474	218	202	701	676	7,956	8,083	201	231	8,157	8,314
Arkansas.......	622	401	741	733	1,363	1,134	2,330	2,320	1	1	2,331	2,321
Louisiana......	1,820	2,640	942	1,185	2,762	3,825	12,730	12,956	322	460	13,052	13,416
Mississippi....	357	288	420	343	777	631	280	494	14	11	294	505
Alabama........	753	674	720	581	1,473	1,255	3,180	3,130	-	1	3,180	3,131

Sales of distillate and residual fuel oils in 1945 - 1946, by States - Continued

(Thousands of barrels)

32652

	Distillate fuels						Residual fuels					
	Diesel fuel		Other light		Total		Residual grades		Crude oil		Total	
	1946	1945	1946	1945	1946	1945	1946	1945	1946	1945	1946	1945
Maine	136	71	1,304	1,078	1,440	1,149	2,258	1,718	-	-	2,258	1,718
New Hampshire.	55	29	946	850	1,001	879	768	536	-	-	768	536
Vermont.......	28	20	671	606	699	626	203	142	-	-	203	142
Massachusetts.	973	1,141	11,892	10,499	12,865	11,640	14,711	14,508	-	5	14,711	14,513
Rhode Island..	36	39	3,061	3,010	3,097	3,049	5,576	4,155	-	13	5,576	4,168
Connecticut...	650	554	6,134	5,656	6,784	6,210	7,111	4,934	6	-	7,117	4,934
New York......	1,592	2,178	31,784	27,776	33,376	29,954	30,380	27,105	-	-	30,380	27,105
New Jersey....	3,886	7,740	18,315	18,224	22,201	25,964	42,800	49,253	14	19	42,814	49,272
Pennsylvania..	2,299	2,531	12,482	10,087	14,781	12,618	35,093	35,148	4	62	35,097	35,210
Delaware......	44	57	526	455	570	512	1,044	1,173	-	-	1,044	1,173
Maryland......	1,119	1,477	4,152	3,499	5,271	4,976	14,604	12,889	-	-	14,604	12,889
D. C.	168	207	1,871	1,656	2,039	1,863	1,073	866	-	-	1,073	866
Virginia......	847	779	2,299	1,833	3,146	2,612	6,402	5,943	-	-	6,402	5,943
West Virginia.	222	177	152	161	374	338	482	888	-	-	482	888
North Carolina	814	576	1,363	1,008	2,177	1,584	643	504	-	-	643	504
South Carolina	523	472	621	445	1,144	917	2,112	790	-	-	2,112	790
Georgia.......	552	434	1,012	864	1,564	1,298	2,924	2,821	94	-	3,018	2,821
Florida.......	1,895	1,509	1,376	1,149	3,271	2,658	14,085	14,957	-	2	14,085	14,959
Total U. S. ..	54,063	66,412	188,487	165,213	242,550	231,625	479,529	538,636	3,697	3,629	483,226	542,265

Sales of kerosine by States and uses, 1945-1946
(Thousands of barrels of 42 gallons)

32652

	Sold as range oil		Tractor fuel		All other uses		Total	
	1946	1945	1946	1945	1946	1945	1946	1945
California........	250	381	-	24	1,221	1,286	1,471	1,691
Oregon...........	40	32	-	-	152	160	192	192
Washington........	46	32	-	-	297	226	343	258
Arizona..........	31	27	-	1	112	113	143	141
Nevada...........	2	3	-	-	15	13	17	16
Idaho............	13	7	11	12	45	41	69	60
Montana..........	48	30	70	51	63	56	181	137
Wyoming..........	19	10	21	22	25	27	65	59
Utah.............	11	6	7	7	18	18	36	31
Colorado.........	65	40	107	60	83	81	255	181
New Mexico........	142	89	48	51	99	84	289	224
North Dakota......	113	97	193	184	126	94	432	375
South Dakota......	138	103	192	149	112	91	442	343
Minnesota.........	515	381	245	237	478	450	1,238	1,068
Nebraska.........	335	260	173	143	241	211	749	614
Iowa.............	415	347	896	831	777	624	2,088	1,802
Wisconsin.........	369	300	442	384	571	474	1,382	1,158
Illinois..........	2,138	1,822	516	451	2,049	1,772	4,703	4,045
Indiana..........	399	314	278	256	1,221	1,123	1,898	1,693
Michigan..........	570	429	513	467	915	820	1,998	1,716
Ohio.............	731	559	248	197	611	552	1,590	1,308
Kentucky..........	197	133	103	112	693	605	993	850
Tennessee.........	449	386	194	178	803	728	1,446	1,292
Missouri..........	660	557	213	174	982	817	1,855	1,548
Kansas...........	217	179	351	274	457	353	1,025	806
Texas............	1,362	1,092	849	788	3,016	2,628	5,227	4,508
Oklahoma.........	381	274	284	251	892	712	1,557	1,237
Arkansas.........	466	369	263	230	815	625	1,544	1,224
Louisiana.........	253	203	238	224	1,031	827	1,522	1,254
Mississippi.......	127	96	203	165	661	503	991	764
Alabama..........	240	186	109	118	685	540	1,034	844
Maine............	1,636	1,402	6	5	56	48	1,698	1,455
New Hampshire.....	982	839	2	1	21	11	1,005	851
Vermont..........	505	442	2	2	78	62	585	506
Massachusetts.....	12,838	10,785	-	-	478	433	13,316	11,218
Rhode Island......	2,423	2,048	-	3	68	65	2,491	2,116
Connecticut.......	4,219	3,651	1	-	118	95	4,338	3,746
New York.........	8,204	6,994	78	76	1,189	1,099	9,471	8,169
New Jersey........	4,195	3,545	65	52	1,174	1,040	5,434	4,637
Pennsylvania......	1,658	1,354	112	95	1,297	1,172	3,067	2,621
Delaware.........	172	132	1	1	76	64	249	197
Maryland.........	807	691	17	9	614	550	1,438	1,250
District of Columbia........	155	125	1	1	110	88	266	214
Virginia.........	526	419	26	19	771	667	1,323	1,105
West Virginia.....	61	41	10	11	234	172	305	224
North Carolina....	1,075	858	114	109	758	681	1,947	1,648
South Carolina....	410	320	91	79	680	566	1,181	965
Georgia..........	536	394	131	104	609	580	1,276	1,078
Florida..........	961	756	120	139	844	642	1,925	1,537
Total U.S. ..	52,105	43,540	7,544	6,747	28,441	24,689	88,090	74,976

Sales of range oil by States, 1945-1946
(Thousands of barrels of 42 gallons)

32652

	Kerosine		Grade No. 1 fuel oil		Total	
	1946	1945	1946	1945	1946	1945
California	250	381	--	--	250	381
Oregon	40	32	--	--	40	32
Washington	46	32	--	--	46	32
Arizona	31	27	--	--	31	27
Nevada	2	3	--	--	2	3
Idaho	13	7	38	36	51	43
Montana	48	30	201	188	249	218
Wyoming	19	10	39	30	58	40
Utah	11	6	39	11	50	17
Colorado	65	40	188	155	253	195
New Mexico	142	89	30	21	172	110
North Dakota	113	97	106	42	219	139
South Dakota	138	103	44	42	182	145
Minnesota	515	381	582	545	1,097	926
Nebraska	335	260	83	93	418	353
Iowa	415	347	437	688	852	1,035
Wisconsin	369	300	703	649	1,072	949
Illinois	2,138	1,822	1,796	1,523	3,934	3,345
Indiana	399	314	308	290	707	604
Michigan	570	429	853	797	1,423	1,226
Ohio	731	559	121	110	852	669
Kentucky	197	133	1	1	198	134
Tennessee	449	386	49	47	498	433
Missouri	660	557	451	310	1,111	867
Kansas	217	179	65	62	282	241
Texas	1,362	1,092	21	19	1,383	1,111
Oklahoma	381	274	12	10	393	284
Arkansas	466	369	101	85	567	454
Louisiana	253	203	33	18	286	221
Mississippi	127	96	12	14	139	110
Alabama	240	186	59	51	299	237
Maine	1,636	1,402	127	120	1,763	1,522
New Hampshire	982	839	46	34	1,028	873
Vermont	505	442	--	10	505	452
Massachusetts	12,838	10,785	458	442	13,296	11,227
Rhode Island	2,423	2,048	101	84	2,524	2,132
Connecticut	4,219	3,651	223	344	4,442	3,995
New York	8,204	6,994	342	128	8,546	7,122
New Jersey	4,195	3,545	231	211	4,426	3,756
Pennsylvania	1,658	1,354	255	11	1,913	1,365
Delaware	172	132	--	1	172	133
Maryland	807	691	8	5	815	696
District of Columbia	155	125	10	5	165	130
Virginia	526	419	41	51	567	470
West Virginia	61	41	--	--	61	41
North Carolina	1,075	858	31	27	1,106	885
South Carolina	410	320	68	46	478	366
Georgia	536	394	80	77	616	471
Florida	961	756	66	48	1,027	804
Total U. S.	52,105	43,540	8,459	7,481	60,564	51,021

Regional distribution of distillate fuel-oil sales, 1942-1946
(Thousands of barrels of 42 gallons)

32652

Region	1942	1943	1944	1945	1946	Percent of change in 1946 compared with 1945
Pacific Coast....	21,466	27,412	28,485	28,234	32,019	13.4
Rocky Mountain...	2,635	2,904	4,410	6,010	5,631	- 6.3
North Central....	53,082	49,874	48,804	53,810	62,694	16.5
South Central....	18,667	32,981	38,843	34,724	26,406	- 24.0
New England......	21,940	20,542	21,096	23,553	25,886	9.9
Middle Atlantic..	61,294	65,052	72,845	75,887	78,238	3.1
South Atlantic...	7,729	8,947	9,389	9,407	11,676	24.1
Total U.S...	186,813	207,712	223,872	231,625	242,550	4.7

Regional percentages of distillate fuel-oil sales, 1942-1946

Region	1942	1943	1944	1945	1946
Pacific Coast......................	11.5	13.2	12.7	12.2	13.2
Rocky Mountain.....................	1.4	1.4	2.0	2.6	2.3
North Central......................	28.4	24.0	21.8	23.2	25.8
South Central......................	10.0	15.9	17.4	15.0	10.9
New England........................	11.8	10.4	9.4	10.2	10.7
Middle Atlantic....................	32.8	30.8	32.5	32.7	32.3
South Atlantic.....................	4.1	4.3	4.2	4.1	4.8
Total United States............	100.0	100.0	100.0	100.0	100.0

Regional distribution of residual fuel-oil sales, 1942-1944
(Thousands of barrels of 42 gallons)

Region	1942	1943	1944	1945	1946	Percent of change in 1946 compared with 1945
Pacific Coast..	120,855	158,854	155,073	169,666	127,998	- 24.6
Rocky Mountain.	8,520	9,865	14,813	15,362	14,802	- 3.6
North Central..	45,159	48,275	52,145	52,806	49,447	- 6.4
South Central..	95,879	122,113	125,265	126,000	108,592	- 13.8
New England....	28,140	22,127	27,819	26,011	30,633	17.8
Middle Atlantic.	90,507	100,973	128,232	126,515	125,012	- 1.2
South Atlantic.	16,273	20,270	26,065	25,905	26,742	3.2
Total U.S.	405,333	482,477	529,412	542,265	483,226	- 10.9

Regional percentages of residual fuel-oil sales,1942-1946

Region	1942	1943	1944	1945	1946
Pacific Coast	29.8	32.9	29.3	31.3	26.5
Rocky Mountain.....................	2.1	2.1	2.8	2.8	3.1
North Central	11.1	10.0	9.8	9.8	10.2
South Central......................	23.7	25.3	23.7	23.2	22.5
New England........................	7.0	4.6	5.3	4.8	6.3
Middle Atlantic....................	22.3	20.9	24.2	23.3	25.9
South Atlantic.....................	4.0	4.2	4.9	4.8	5.5
Total United States..........	100.0	100.0	100.0	100.0	100.0

Regional distribution of kerosine sales, 1942-1946
(Thousands of barrels of 42 gallons)

32652

	1942	1943	1944	1945	1946	Percentage of change in 1946 compared with 1945
Pacific Coast......	2,149	2,894	2,454	2,298	2,166	- 5.7
Rocky Mountain.....	538	607	639	692	895	29.3
North Central	13,014	13,775	14,697	16,264	18,959	16.6
South Central......	9,254	11,337	11,966	12,185	14,755	21.1
New England........	21,207	18,322	19,263	19,892	23,433	17.8
Middle Atlantic....	16,803	15,167	16,211	17,088	19,925	16.6
South Atlantic.....	5,725	5,713	5,984	6,557	7,957	21.4
Total U.S.....	68,690	67,815	71,214	74,976	88,090	17.5

Regional percentages of kerosine sales, 1942-1946

	1942	1943	1944	1945	1946
Pacific Coast..................	3.1	4.3	3.4	3.1	2.5
Rocky Mountain.................	0.8	0.9	0.9	0.9	1.0
North Central..................	18.9	20.3	20.6	21.7	21.5
South Central..................	13.5	16.7	16.8	16.3	16.8
New England....................	30.9	27.0	27.1	26.5	26.6
Middle Atlantic................	24.5	22.4	22.8	22.8	22.6
South Atlantic.................	8.3	8.4	8.4	8.7	9.0
Total United States.........	100.0	100.0	100.0	100.0	100.0

Regional distribution of range oil sales, 1942-1946
(Thousands of barrels of 42 gallons)

Region	1942	1943	1944	1945	1946	Percentage of change in 1946 compared with 1945
Pacific Coast......	155	124	540	475	369	- 22.3
Rocky Mountain.....	196	291	349	623	833	33.7
North Central......	7,325	8,827	9,094	9,958	11,452	15.0
South Central......	1,766	2,673	2,974	3,525	4,460	26.5
New England........	20,879	18,418	19,609	20,201	23,558	16.6
Middle Atlantic....	12,347	11,335	12,475	13,202	16,037	21.5
South Atlantic.....	2,255	2,429	2,595	3,037	3,855	26.9
Total U.S.....	44,923	44,097	47,636	51,021	60,564	18.7

Regional percentages of range oil sales, 1942-1946

Region	1942	1943	1944	1945	1946
Pacific Coast..................	0.4	0.3	1.1	0.9	0.6
Rocky Mountain.................	0.4	0.6	0.7	1.2	1.4
North Central..................	16.3	20.0	19.1	19.5	18.9
South Central..................	3.9	6.1	6.2	6.9	7.3
New England....................	46.5	41.8	41.2	39.6	38.9
Middle Atlantic................	27.5	25.7	26.2	25.9	26.5
South Atlantic.................	5.0	5.5	5.5	6.0	6.4
Total United States........	100.0	100.0	100.0	100.0	100.0

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MINERAL MARKET REPORTS
MMS NO. 1581

COPPER IN 1947
(Preliminary Report)

The general absence of labor-management disputes, such as plagued 1946, featured the production phase of the copper industry in 1947 and was chiefly responsible for the gains of 39 percent in mine output, of 42 percent in smelter production from domestic ores and of 58 percent in refinery output from domestic primary materials, according to the Bureau of Mines, United States Department of the Interior. The 1947 production gains were assisted by the highest annual price since 1918 and a slight improvement in overall mine labor supply.

Throughout most of the year more copper could have been used by consumers than was available as the industry attempted to fill current needs and the residue of pent-up civilian demand accumulated during the war. Apparent consumption of new copper in 1947 was 7 percent below the record peacetime rate of 1946 as imports continued at the sharply reduced rate of 1946 and Office of Metals Reserve inventories were inadequate to fill as in 1946 the large gap between new supply and needs. In addition to heavy domestic demand, calls in the export market were large and expanding. The shortage of dollars in principal foreign markets had the effect of keeping foreign purchases of United States' copper far below actual requirements for the metal.

The price situation was confused during the first half of 1947, as explained in detail later in this report. The several sharp advances of the British Ministry of Supply in its maximum prices for copper, accompanied by gains in United States' export prices, followed by rises in the domestic market (the excess of export prices over the domestic market continuing throughout the year and exceeding 2 cents a pound in April), and the advance of 52 percent in the average annual domestic price for the year, featured 1947 prices. The excise tax of 4 cents a pound on copper imported into the United States was recessed by a bill signed by the President in April, effective April 30, 1947 through March 31, 1949. At the general trade conference at Geneva, concluded October 20, the tax on copper was cut 50 percent. This cut, of course, will be ineffective until the end of the tax recess. In May producers followed the Reconstruction Finance Corp. in raising their prices to 21.5 cents a pound for electrolytic copper in the Connecticut Valley. Efforts to extend the Premium Price Plan beyond June 30, 1947 were ended unsuccessfully by Presidential veto on August 8. The end of premiums was expected to have little effect on production because the price had risen before June 30 to a point where only a very small proportion of the output was entitled to any premium benefits.

Imports of copper in crude and refined form in 1947 continued at about the reduced level of 1946, which was not much above one-half of the 1944-45 rate, according

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Prepared by Helena M. Meyer, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

to data for 11 months. The decline has been chiefly in the refined classification which assumed great importance during the war. Refined imports in 1947 fell somewhat short of the 1946 total. All imports were affected adversely by the period of uncertainty attending legislative deliberations in connection with the removal of the excise tax, already mentioned as recessed for about 2 years from April 30. Exports of refined copper, again the chief export class after being displaced temporarily by wire in 1944 and 1945, almost trebled in 1947. Only dollar deficiency in Europe and the inadequacy of copper supplies in the United States prevented exports from reaching a much higher total.

Stocks of refined copper at refineries fell 35 percent in 1947 and of blister copper and copper in process of refining at smelters and refineries, declined 16 percent; total producers' inventories were the smallest since the end of 1928.

Copper trading on the Commodity Exchange was resumed July 15 after a 6-years' suspension.

With United States' mine production 39 percent above 1946 and foreign output more than 10 percent greater (insofar as incomplete data show), it would appear that the world mine total for 1947 was between 2,400,000 and 2,500,000 short tons.

Production. - The following two tables include 1947 figures based on results of a preliminary survey, covering 11 months' actual figures plus company estimates for December.

Copper produced by smelters from domestic ores, 1943-47, in short tons

1943	1,092,939
1944	1,003,379
1945	782,726
1946	599,656
1947	852,000

The estimated smelter production for December amounted to 70,000 tons or close to the average for the preceding 11 months. The total for the year was 42 percent more than in 1946.

Refinery production of new copper from domestic sources rose 58 percent in 1947 and that from foreign sources decreased 13 percent; altogether a gain of 34 percent in total production from primary materials is indicated.

Refined copper produced at primary plants from domestic and foreign ores and from secondary material, 1943-47, in short tons

Year	Domestic ores	Foreign ores	Total new copper	Secondary
1943	1,082,079	297,184	1,379,263	122,464
1944	973,852	247,335	1,221,187	86,398
1945	775,738	332,861	1,108,599	96,662
1946	578,429	300,233	878,662	105,572
1947	913,000	262,000	1,175,000	264,000

Production of secondary copper at primary refining plants was estimated to have jumped 150 percent from the 1946 rate.

Foreign trade. - Statistics on imports and exports are compiled from records of the Department of Commerce. Figures for 11 months make it appear that the annual total for 1947 will be close to the 1946 level or less than one-half of the peak rate in 1945. Refined copper imports, which predominated during the war and made up more than half of the total in 1942-45, lost first place in 1946 and declined again in 1947.

Copper (unmanufactured) imported into the United States in January-November 1947, by countries, in short tons
(general imports)

	Ore (copper content)	Concentrates (copper content)	Regulus, black or coarse copper (copper content)	Unrefined black blister and converter in pigs or converter bars	Refined in ingots, plates or bars	Old and clippings for remanufacture
Australia	2	303	-	-	-	196
Bolivia	337	6,416	-	-	-	-
Canada	68	16,816	1,983	28	730	4,304
Chile	10,072	12,259	321	52,713	119,806	250
Cuba	50	13,897	-	-	-	55
Japan	-	-	-	-	3,226	-
Mexico	5,394	3,438	1,547	57,161	1,496	60
Newfoundland and Labrador	-	3,922	-	-	-	7
Peru	388	7,326	907	20,525	2,000	-
Southern Rhodesia	-	101	-	-	-	-
Turkey	-	-	-	1,714	-	-
Union of South Africa	1,301	59	12	7,188	-	90
Yugoslavia	-	172	-	7,249	-	-
Other countries	168	113	57	1,097	-	599
	17,780	64,822	4,827	147,675	127,258	5,561

Refined copper resumed preeminence among export classifications in 1946 and continued first in 1947; this class fell behind wire in 1944 and 1945 after holding first place from before 1900. The movement of refined copper from the United States virtually trebled in 1947 and foreign industrial demand could have used considerably more United States copper had conditions permitted its purchase. Exports of refined copper in bars, ingots, etc. in January-November, 1947, by principal countries of destination, were as follows:

	Short tons		Short tons
Argentina	4,932	Italy	7,254
Australia	954	Netherlands	10,283
Belgium and Luxembourg	3,919	Norway	2,492
Brazil	601	Portugal	502
China	645	Sweden	6,721
Czechoslovakia	2,902	Switzerland	8,105
Denmark	528	United Kingdom	63,898
France	5,716	Other	3,084
Germany	3,640		
India and Dependencies	9,784		135,960

Exports of the other classes of copper in the first 11 months of 1947 were as follows:

	Short tons
Ore, concentrates, etc. (copper content)	115
Old and scrap	588
Pipes and tubes	4,606
Plates and sheets	3,920
Rods	1,966
Wire:	
Bare	9,471
Insulated wire and cable	22,188

Stocks. - Producers estimated that stocks of refined copper at refineries would total 62,000 tons at the end of 1947, or a drop of 35 percent during the year. Stocks of blister at smelters, in transit to refineries and of unrefined materials at refineries were expected to be 16 percent lower at the end than at the beginning of the year. Bureau of Mines' stocks are on a physical basis showing metal at smelters and refineries and in transit to refineries, regardless of ownership. The figures in the following table are duplicated in part, therefore, by stocks of the Office of Metals Reserve.

Stocks of copper at primary smelting and refining plants at the end of the year, 1943-47, in short tons

Year	Refined copper	Blister and unfinished materials
1943	68,500	241,000
1944	81,000	311,000
1945	130,000	331,000
1946	96,000	254,000
1947	62,000	214,000

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

31767

FOR RELEASE JANUARY 27, 1948

MINERAL MARKET REPORT
M.M.S. No. 1582

STATISTICAL SUMMARY OF LIGNITE IN 1946

According to reports received by the Bureau of Mines, United States Department of the Interior, 2,667,619 net tons of lignite were produced in the United States in 1946, compared with 2,668,310 tons in 1945. Neither of these figures include tonnage from small mines producing less than 1,000 tons. North Dakota, the chief producer, accounted for 96 percent of the total output; Texas, Montana, and South Dakota produced the remaining 4 percent. The average value per ton increased from $1.55 in 1945 to $1.68 in 1946. The number of men employed was 752 and the average output per man per day, based on calculated man-days, was 15.00 tons. Compared with other coal mining in the United States, the output per man per day in the lignite industry is high, because a large part of the production (83 percent in 1946) is recovered from strip pits where the average output per man per day is much higher than in underground mines. Of the 2,201,579 tons of lignite recovered from strip pits in 1946, 97 percent came from pits in North Dakota. The output from stripping operations in Montana, South Dakota, and Texas totaled only 74,009 tons. The number of men employed in stripping operations totaled 508 with an average output per man per day of 18.90 tons.

The figures are based on reports received from 59 mines producing 1,000 tons or more annually, seven of which accounted for 81 percent of the total lignite mined; three mines accounted for 8 percent; and fifty mines, 11 percent.

According to the Federal Power Commission, 1,120,486 tons of lignite were consumed in generating electric energy in 1946; the West North Central States, consuming 787,595 tons; the West South Central States, 772 tons; and the Mountain States, 332,119 tons, a large part of which was subbituminous.

The Bureau of Mines wishes to thank the lignite operators for their cooperation without which this report would not have been possible. The data on individual operations are voluntary and confidential as is customary in the statistical surveys of the Bureau.

Prepared by Marian I. Cooke and J. A. Corgan, Chief Anthracite and Coke Section under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

Summary of production, value, men employed, days operated, man-days of labor, and output per man per day at lignite mines in the United States in 1946, by States 1/

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	Montana 2/	North Dakota	South Dakota	Texas	Total
Production (net tons):					
Loaded at mines for shipment	---	2,097,317	1,680	55,604	2,154,601
Commercial sales by truck or wagon	40,013	373,631	15,266	---	428,910
Used by employees, taken by locomotives at tipple, and other uses	---	3/ 67,981	---	374	68,355
Used at mine for power and heat	---	15,753	---	---	15,753
Total production: 1946	40,013	2,554,682	16,946	55,978	2,667,619
1945	41,597	2,522,319	24,445	79,949	2,668,310
Value:					
Totals: 1946	$105,331	$4,301,603	$36,362	$46,454	$4,489,750
1945	$ 99,000	$3,924,000	$53,000	$68,000	$4,144,000
Average per ton: 1946	$2.63	$1.68	$2.15	$0.83	$1.68
1945	$2.38	$1.56	$2.17	$0.85	$1.55
Number of employees:					
Underground	27	156	---	---	183
Surface (including strip pits)	12	518	14	25	569
Total employees: 1946	39	674	14	25	752
1945	40	757	15	26	838
Average number of days mines operated:					
1946	175	241	169	248	236
1945	196	226	259	158	223
Man-days of labor: 1946	6,837	162,388	2,364	6,200	177,789
Average output (tons) per man per day: 1946	5.85	15.73	7.17	9.03	15.00

1/Exclusive of small mines producing less than 1,000 tons.
2/Includes output from Custer, Dawson, McCone, Richland, Roosevelt, and Sheridan Counties.
3/Includes some lignite made into briquets.

Summary of stripping operations that produced lignite in the United States in 1946, by States

	Montana	North Dakota	South Dakota	Texas	Total
Number of strip pits 1/	1	28	3	1	33
Number of shovels, dragline excavators, and coal-loading machines 2/	1	45	3	3	52
Coal produced by stripping	1,079	2,127,576	16,946	55,978	2,201,579
Total value at mines	$2,838	$3,401,432	$36,362	$46,454	$3,487,086
Average value per ton	$2.63	$1.60	$2.15	$0.83	$1.58
Number of employees:					
In strip pits	4	255	14	10	283
All others	---------	210	------------	15	225
Total	4	465	14	25	508
Average number of days mines operated	64	232	169	248	229
Man-days of labor	256	107,668	2,364	6,200	116,488
Average tons per man per day	4.21	19.76	7.17	9.03	18.90

1/Includes some pits in which stripping is done by hand.
2/In some cases the same equipment was used for stripping or excavating and for loading coal; this duplication has been eliminated. In some cases coal was excavated by machine and loaded by hand.

Production, value, men employed, days operated, man-days of labor, and output per man per day at lignite mines in the United States in 1946, by States and counties

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County	Total production (net tons)	Value: Total	Value: Average per ton	Total number of employees	Man days of labor	Average number of days mine operated	Average tons per man per day
			MONTANA				
Custer	13,281	$36,403	$2.74	11	1,690	154	7.86
Dawson	2,560	6,400	2.50	4	720	180	3.56
McCone	1,079	2,838	2.63	4	256	64	4.21
Richland	8,022	21,990	2.74	5	1,250	250	6.42
Roosevelt	2,320	9,280	4.00	5	900	180	2.58
Sheridan	12,751	28,420	2.23	10	2,021	202	6.31
Total Montana	40,013	105,331	2.63	39	6,837	175	5.85
			NORTH DAKOTA				
Adams	68,043	$131,417	$1.93	24	4,962	207	1/ 13.71
Bowman	6,455	14,620	2.26	8	666	83	1/ 9.69
Burke	374,734	610,736	1.63	72	19,137	266	1/ 19.58
Burleigh	5,777	16,705	2.89	7	1,676	239	3.45
Divide	255,512	316,477	1.24	45	10,221	227	1/ 25.00
Dunn	3,750	9,000	2.40	4	840	210	4.46
Golden Valley	1,140	2,850	2.50	4	500	125	2.28
Grant	17,281	43,103	2.49	10	1,400	140	1/ 12.34
Hettinger	16,679	40,460	2.43	14	2,447	175	6.82
McKenzie	4,004	10,979	2.74	6	873	146	4.59
McLean	40,191	81,281	2.02	39	5,078	130	7.91
Mercer	1,070,018	1,661,926	1.55	233	61,490	264	1/ 17.40
Morton	26,734	57,578	2.15	19	3,646	192	7.33
Oliver	4,000	10,000	2.50	5	650	130	6.15
Stark	97,746	364,963	3.73	42	13,579	323	7.20
Ward	539,395	868,727	1.61	121	31,886	264	1/ 16.92
Williams	23,223	60,781	2.62	21	3,337	159	6.96
Total North Dakota	2,554,682	4,301,603	1.68	674	162,388	241	15.73
			SOUTH DAKOTA				
Corson	1,370	$3,525	$2.57	4	258	65	5.31
Dewey	13,029	27,361	2.10	7	1,620	231	8.04
Perkins	2,547	5,476	2.15	3	486	162	5.24
Total South Dakota	16,946	36,362	2.15	14	2,364	169	7.17
			TEXAS				
Total Texas: Milam	55,978	$46,454	$0.83	25	6,200	248	1/ 9.03

1/Output is obtained chiefly from strip pits in which the production per man per day is large.

Number and production of lignite mines in the United States in 1946, classified by size of output.

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Class	Mines		Production		
			Net tons		
	Number	Percent	Total	Average per mine	Percent of total
1. (100,000 tons and over)----	6	10.2	2,167,604	361,267	81.2
2. (50,000 and under 100,000)-	3	5.1	201,645	67,215	7.6
3. (10,000 and under 50,000)--	10	16.9	178,292	17,829	6.7
4. (Under 10,000 tons)--------	40	67.8	120,078	3,002	4.5
Total----------------	59	100.0	2,667,619	45,214	100.0

Lignite mined by different methods in the United States in 1946, by States, in net tons

	Montana	North Dakota	South Dakota	Texas	Total
From underground workings:					
Shot off the solid-------	38,934	33,875	------------	------------	72,809
Cut by machines 1/-------	----------	393,231	------------	------------	393,231
Total underground------	38,934	427,106	------------	------------	466,040
From strip pits-------------	1,079	2,127,576	16,946	55,978	2,201,579
Grand total production-	40,013	2,554,682	16,946	55,978	2,667,619

1/A total of 7 machines was used--2 "permissible" and 5 other types.

Lignite loaded for shipment in 1946, by individual railroads, as reported by operators, in net tons

Railroads	State	Quantity
Great Northern---------------------------------	North Dakota	577,864
Chicago, Milwaukee, St. Paul & Pacific-------	North Dakota South Dakota	39,351 1,680
Northern Pacific--------------------------------	North Dakota	968,509
Minneapolis, St. Paul & Sault Ste. Marie-----	North Dakota	511,593
Rockdale, Sandow & Southern------------------	Texas	55,604
Total--------------------------------------	---------------	2,154,601

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary

JAMES BOYD, Director

For release February 10, 1948.

MINERAL MARKET REPORT
MMS No. 1583

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MINE PRODUCTION OF ZINC IN THE UNITED STATES IN 1947 - PRELIMINARY ANNUAL FIGURES

The absence of labor strikes in 1947, an improved mine and mill labor supply and the highest annual price for Prime Western grade zinc, St. Louis since 1917, combined to boost mine production of recoverable zinc in the United States 9 percent over the 1946 output, according to the Bureau of Mines, United States Department of the Interior. In 1947, the total domestic mine production of recoverable zinc (including that recovered as zinc pigments and salts directly from ore) was 624,809 short tons, compared with 574,833 tons in 1946. Production in the combined Western States gained 22 percent over 1946 and reached the highest level on record. At the average weighted yearly price of $0.117 per pound, which includes allowance for premiums paid for overquota production, the 1947 domestic mine output was valued at $146,205,306. This compares with a value of $140,259,252 in 1946 which was calculated at the average weighted price for that year of $0.122. The market price for Prime Western grade slab zinc, St. Louis, was quoted at $0.105 per pound throughout 1947.

The end of the Premium Price Plan on June 30, 1947 caused a drop in zinc output in some producing areas, particularly the Tri-State (Kansas, Oklahoma and Missouri) region where, according to a Bureau of Mines survey, 38 zinc-producing mines closed directly or indirectly because of the expiration of Government subsidies. Zinc output from these mines averaged 3,720 tons monthly in 1946 and 3,750 tons monthly in 1947. In the combined Western States 15 mines were reported to have closed for lack of subsidies. Two producers in the Eastern States also closed as did 3 mines in the Central States, exclusive of the Tri-State district. The ultimate effects of the termination of the Premium Price Plan are difficult to gauge accurately at this time for some operators who lost revenue through expiration of subsidy payments continued producing during the last half of 1947 with the hope that Congress would enact legislation reestablishing Government subsidies, and others, where mining conditions permitted, diverted operations to higher grade sections of their mines. Additional closures probably will occur as operations depending on developed ore but without operating margin for exploration find their profitable ore exhausted.

Prepared by Richard H. Mote, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

This report which summarizes mine output for 1947 is part of the regular monthly zinc mine production series. As preliminary figures for November and estimates for December are included, the report serves for both these months and the next issue will be for January 1948. The following table and State reviews for 1947 were obtained from current preliminary reports of the western field offices of the Bureau of Mines, the principal source of information used in the preparation of all the reports in the series. The figures are given in terms of recoverable zinc content of ores and concentrates.

Eastern States

Mine production of zinc in the Eastern States in 1947 (approximately 158,600 tons) returned to a more nearly normal annual rate after the slump in 1946 caused by labor strikes. Changes in 1947 from 1946 in zinc production by States were increases of 27 percent in Tennessee, 18 percent in New Jersey, 5 percent in New York, and nearly 1 percent in Virginia.

New Jersey. - In 1947 New Jersey continued to be the leading zinc-producing State in the Eastern States. The State output of recoverable zinc as metal or in oxide was approximately 76,250 tons compared with 64,454 tons in 1946. Production in 1946 was unusually low because of a labor strike. The producing mines in both years were the Mine Hill at Franklin and the Sterling Hill at Ogdensburg, Sussex County.

New York. - Zinc production in New York increased from 32,515 tons in 1946 to 34,165 tons in 1947. The Balmat and Edwards mines of the St. Joseph Lead Co. continued to be the principal producers.

Tennessee. - The principal zinc mines in Tennessee operated steadily throughout 1947, and the zinc output increased to 31,185 tons compared with 24,614 tons in 1946. Mines of the American Zinc Co. which operated in 1947 were the Grasselli, Jarnagin, Mascot No. 2, Mascot Graves, and Mossy Creek. The Davis-Bible mine of the Universal Exploration Co. at Jefferson City also operated throughout 1947. In Polk County the Tennessee Copper Co. recovered zinc concentrates from copper-iron-zinc sulfide ore. Other producing mines in 1947 were the Tennessee Zinc Co. Embreeville group in Washington and Unicoi Counties which operated during the first part of the year and the Hoover (Gaither) mine in Cannon County east of Murfreesboro which operated from January through September.

Virginia. - The output of recoverable zinc in Virginia was about 17,000 tons in 1947 compared with 16,905 tons in 1946. The Austinville mine in Wythe County, which has been in continuous operation since 1924, operated at approximately the same rate as in 1946.

Central States

Mine production of zinc in the Central States (comprising in order of output Oklahoma, Kansas, Missouri, Wisconsin, Illinois, Kentucky, and Arkansas) decreased 19 percent in 1947 from 1946 and was the lowest since 1932.

Tri-State (Joplin) region. - The Tri-State (or Joplin) region of northeastern Oklahoma, southeastern Kansas, and southwestern Missouri produced 108,550 tons of zinc, 82 percent of the Central States total zinc, and 17 percent of the United States total zinc output in 1947. After the Premium Price Plan expired June 30, 1947 more than half the district mines and all but 2 of the tailing mills shut down, and many of them remained idle or operated for a short time only the rest of the year. The recovery of combined zinc and lead concentrates from crude ore averaged 3.1 percent the first half of the year and 4.23 percent the last half; the recovery from old tailings was 0.370 percent the first half and 0.434 percent the last half of the year. About 22 mine mills and 3 tailing mills were operating in December 1947 compared with 29 and 14, respectively, in December 1946. About 70 mines, many of which were operating with small crews on selective mining, were producing in December 1947 compared with 170 in December 1946. The Eagle-Picher Mining & Smelting Co. was the largest individual producer of both zinc and lead in the district. The company operated mines in the Picher, Galena, and Oronogo areas and its 15,000-ton Central mill at Cardin (Okla.) on company account and operated the Paxson mine group and mill as agent for the Reconstruction Finance Corporation until that group was closed June 30. Other large producers of zinc were St. Louis Smelting & Refining Co., the Kansas Explorations, Inc., American Zinc Co., Beck Mining Co., Cameron & Henderson, C. G. & C. Co., and Evans-Wallower Zinc Inc.

Arkansas. - Mine production of recoverable zinc in Arkansas totaled 12 tons in 1947 compared with 85 tons in 1946. Small tonnages of zinc concentrates were shipped from the Mattie Mae and Palmer mines in Marion County and the Levy in Sevier County.

Illinois. - Mines in Illinois produced 9,816 tons of recoverable zinc in 1947 compared with 8,798 tons in 1946. The Northern Illinois area alone produced 4,509 tons of zinc in 1947. The Tri-State Zinc, Inc. in Northern Illinois, the Ozark-Mahoning Co. and the Minerva Oil Co. in Southern Illinois continued to operate during 1947. The Bix Six (North Unity) and Bennett (South Unity) mines in Northern Illinois operated until the Premium Price Plan expired June 30.

Kentucky. - Kentucky mines produced 376 tons of zinc in 1947 compared with 314 tons in 1946. The K. T. Dome Mining Syndicate operated the old Gratz zinc-lead mine and 50-ton mill at Gratz in Owen County during the first 5 months of 1947. Some Fluorspar producers in Crittenden and Livingston Counties shipped byproduct zinc concentrates to smelters and byproduct material containing zinc, lead and fluorspar to the Mahoning mill at Rosiclare, Ill.

Wisconsin. - The output of recoverable zinc in Wisconsin was about 12,900 tons in 1947 compared with 14,276 tons in 1946. Most of the mines in the area were closed after the Premium Price Plan expired June 30, 1947. The Vinegar Hill Zinc Co. custom flotation mill at Cuba City, principal producer of concentrates in the district, maintained a steady production rate throughout the year by treating ore from the Office of Metals Reserve stock pile after shipments from the mines decreased.

Western States

Mines in the combined Western States produced a total of 334,198 tons of zinc in 1947, a gain of 22 percent over 1946 and the highest level on record. About 54 percent of the total domestic output of zinc in 1947 (48 percent in 1946) was produced in the Western States.

Arizona. - For the eighth consecutive year Arizona succeeded in making a record output of zinc, and in 1947 the production of 52,900 tons was 21 percent greater than in 1946. The State again ranked second among the zinc-producing Western States. The Copper Queen mine at Bisbee, the largest zinc producer in the State, increased its output 34 percent. Other large producers of zinc were the Iron King, San Xavier, Mammoth-St. Anthony, Republic (Coronado Copper & Zinc Co.), and Trench-Flux properties. In 1947 these six properties produced 92 percent of the State zinc output. About 89 percent of the zinc production in 1947 was recovered from zinc-lead ore and nearly all the remainder from zinc-copper ore, zinc ore, and zinc-lead-copper ore.

California. - Mine production of zinc in California was 5,300 tons, a 23-percent decrease from 1946. The largest producer was the Shawmut Copper Mine Co., operator of the Penn mine, Campo Seco district, Calaveras County. Nearly half the State's output of zinc came from this property and the ratio would have been considerably higher had not the property shut down in July as a direct result of the expiration of the Premium Price Plan. The second largest zinc producer was the Mountain Copper Co., Ltd., Hornet mine, Flat Creek district, Shasta County, which operated during the first six months of 1947 and closed June 30.

Colorado. - Mine production of recoverable zinc in Colorado was 37,572 tons, an increase of 4 percent over the 36,147 tons produced in 1946. The New Jersey Zinc Co. Empire Zinc division was again the largest producer of zinc in the State. Other important zinc producers included the Rico Argentine Mining Co. in Dolores County; the Resurrection Mining Co. and the John Hamm Mining & Milling Ltd. in Lake County; American Zinc Lead & Smelting Co. in Ouray County; Shenandoah-Dives Mining Co. and the Denver Equipment Co. in San Juan County; Telluride Mines Inc., and Idarado Mining Co. in San Miguel County and the American Smelting & Refining Co. in Summit County. Of the above producers the John Hamm Mining & Milling Ltd. ceased producing zinc in September 1947 and the Denver Equipement Co. closed on January 1, 1948 as a result of the ending of the Premium Price Plan.

Idaho. - Idaho continued to be the largest zinc-producing State in the United States. The 1947 output of 78,850 tons was 10 percent greater than in 1946. The Star mine near Burke in the Coeur d'Alene region ranked first among Idaho zinc producers in 1947; it was followed by the Page, Bunker Hill smelter slag dump, Sidney, Morning, Frisco, Osburn tailings, Bunker Hill & Sullivan mine, Monitor, Triumph, Little Pittsburg, Tamarack & Custer, Spokane-Idaho, and Highland-Surprise properties. These 14 properties, all, except the Triumph, in the Coeur d'Alene region, produced 83 percent of the State total zinc output. About 95 percent of the State total zinc in 1947 came from the Coeur d'Alene region.

Montana. - Zinc production in Montana was 42,775 tons, an increase of 155 percent over the 1946 total, and the highest production since 1942. Most large zinc-producing operations experienced declines in 1947 but the Anaconda Copper Mining Co. made a remarkable record at its Butte Hill mine and dumps as the zinc yield from this source was 58 times that in 1946. Among the remaining important producers only the Emma and Travona mines reported increases. The Butte Hill mine and dumps was the largest source of zinc in Montana, followed in order by the Emma, Mike Horse, and Poulin mines, East Helena slag-fuming plant, Toledo-Buckeye, and Travona mines. These seven producers contributed 97 percent of the State total zinc.

Nevada. - Production of zinc in Nevada fell 21 percent below the record established in 1946. Mines in the Pioche district, Lincoln County, produced more than 80 percent of the 1947 zinc output. The leading producers of zinc in 1947 were the Combined Metals Reduction Company's Pioche mill and the Salt Lake-Pioche Mining Co., both in the Pioche district. Other important producers were Bristol Silver Mines Co., Birstol Silver mine, Jack Rabbit district, Lincoln County; Callahan Zinc-Lead Co., Mount Hope mine, Eureka district, Eureka County; Hamilton & Jacobson properties, Yellow Pine district, Clark County; and McFarland & Hullinger, Cleveland mine, Delano district, Elko County.

New Mexico. - New Mexico remained the third largest zinc-producing State in the Western States in 1947 as mine production increased 20 percent over 1946. The most important producer in 1947 was the United States Smelting, Refining & Mining Co. which operated several mines in the Central district under the single name "Bayard mine". The Pewabic, Copper Flat, and Kearny mines of the Peru Mining Co. were operated during the first half of 1947; after expiration of the Premium Price Plan on June 30, all operations were concentrated at the Kearny mine. Other important producers of zinc in New Mexico in 1947 were the Empire Zinc Co. Hanover mine group, American Smelting & Rfg. Co. Ground Hog and Hanover milling unit (formerly Combination-Black Hawk mill) in Grant County and American Smelting & Refining Co. Magdalena unit in Socorro County.

South Dakota. - The Belle Eldridge Gold Mines Inc. produced a small quantity of zinc duing development of its mine at Deadwood, Lawrence County.

Texas. - The Clark Mining Co. which operated the Bonanza mine until April accounted for all the zinc produced in Texas in 1947.

Utah. - Output of recoverable zinc of 42,100 tons in Utah in 1947 was the highest since 1943. The leading producers of zinc in order of decreasing output were the United States & Lark group, New Park Mining Co., Tooele slag-fuming plant, Chief Consolidated Mining Co., Pacific Bridge Co., Park Utah Consolidated Mines Co., Calumet mine, and Silver King Coalition Mines Co. These 8 producers supplied 88 percent of the State total output of zinc in 1947.

Washington. - Zinc output in Washington in 1947 was the greatest of any full peacetime year and was exceeded only in 1941 and 1942. About 97 percent of the State zinc in 1947 came from the properties of the American Zinc, Lead & Smelting Co., Pend Oreille Mines & Metals Co., Goldfield Consolidated Mines Co. (Deek Creek mine, formerly operated by Jamison-Higginbotham Mining Co.), Howe Sound Co., and Metaline Mining & Leasing Co. Output of zinc for the year from the properties of the Howe Sound Co. and the Metaline Mining & Leasing Co. was considerably less than in 1946 because these properties confined operations to development only during part of the year. Large gains in production were made at the properties of the American Zinc, Lead & Smelting Co. and the Goldfield Consolidated Mines Co., whereas the Pend Oreille Mines & Metals Co. held close to its 1946 level of output.

Alaska

The first zinc ever to be recovered from Alaska ores was produced in 1947 at a United States smelter from zinc concentrates shipped from the Big Four Mining Company's Maloney mine on George Inlet, 15 miles south of Ketchikan.

Mine production of recoverable zinc in the United States in 1947,
by months 1/, in short tons

Region and State	Jan.	Feb.	Mar.	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
Eastern States....	14,000	12,509	12,973	13,537	13,325	13,929	13,915	12,808	12,528	13,654	12,699	12,723	158,600
Central States....	14,155	12,885	14,403	14,393	15,010	15,690	5,918	7,378	7,571	8,338	8,193	8,066	132,000
Western States:													
Arizona.........	4,600	4,420	4,710	4,790	4,430	4,800	4,450	4,075	3,860	4,370	4,185	4,210	52,900
California......	440	510	660	890	780	720	490	310	300	100	75	25	5,300
Colorado........	2,960	2,857	3,202	3,089	2,980	3,450	2,950	3,000	3,189	3,515	3,270	3,110	37,572
Idaho...........	6,700	5,850	6,300	6,600	7,375	7,685	6,445	6,400	5,900	6,365	6,580	6,650	78,850
Montana.........	1,600	2,600	3,260	3,900	3,885	3,930	3,925	4,140	3,910	3,800	3,925	3,900	42,775
Nevada..........	2,070	1,850	1,480	1,420	1,320	1,770	1,350	1,400	1,420	1,500	1,200	1,000	17,780
New Mexico......	3,601	3,417	3,519	3,552	3,712	3,530	3,048	3,543	3,799	4,109	3,762	3,650	43,242
South Dakota....	------	------	------	------	------	------	------	------	------	------	------	16	16
Texas...........	------	12	8	10	------	------	------	------	------	------	------	------	30
Utah............	3,420	3,365	3,735	4,170	4,250	4,200	3,010	3,370	3,060	3,185	3,170	3,165	42,100
Washington......	1,060	1,063	1,045	977	835	1,175	1,025	1,265	1,280	1,360	1,273	1,275	13,633
	26,451	25,944	27,919	29,398	29,567	31,260	26,693	27,503	26,713	28,304	27,440	27,001	334,198
Alaska...........	------	------	------	------	------	------	------	11	------	------	------	------	11
Total United States..........	54,606	51,338	55,295	57,328	57,902	60,879	46,526	47,700	46,817	50,296	48,332	47,790	624,809

1/ Revised figures.
2/ Alaska monthly totals based on smelter receipts.

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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary
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MINERAL MARKET REPORTS
M.M.S. NO. 1584

LEAD AND ZINC PIGMENTS AND ZINC SALTS IN 1947
(Preliminary Annual Report)

Demand for lead and zinc pigments continued at a high level in 1947 and on the whole supplies fell short of filling all needs, a condition that has existed for a number of years, according to preliminary figures released by the Bureau of Mines, United States Department of the Interior. In 1946 labor strikes in pigment-consuming industries as well as in industries supplying crude materials used by the pigments manufacturers further unbalanced the supply-demand relationships and shortages of crude materials were a continuing problem in 1947. Labor-management relations were widely improved in 1947, and such important pigment users as the automobile, construction, rubber and storage battery industries were among those to show marked production gains. The manufacture of passenger automobiles and trucks gained more than 50 percent in 1947 and preliminary construction data indicated an increase of 26 percent for this important pigment user. New construction and maintenance are expected to rise 18 percent further in 1948 and gains likewise are expected in the other industries mentioned. The value of paint, varnish and lacquer materials sold in 1947 passed the anticipated new peak of $1,000,000,000. The high level of lead and zinc pigment prices were a noteworthy factor in the realization of the new record.

Shipments of white lead in oil were 26 percent greater than in 1946 while those of the dry variety showed a much smaller percentage rise. Dry white lead did not make a bad showing in relation to most earlier years but the "in oil" type fared well only in relation to 1946 and 1945, the last-named year having had the lowest total since considerably before the beginning of the present century.

Red lead shipments increased 5 percent over 1946 but were lower than in every year of the period 1939-45 and 30 percent less than the annual average for that period. The suitability of red lead as a construction paint and for battery manufacture caused red lead shipments to rise to record rates in the war. The storage battery use of litharge likewise caused this pigment to make successive annual records during the war. Shipments fell 4 percent in 1946 but jumped 24 percent in 1947 to a new all-time high by a substantial margin.

Lead supplies rose sharply in 1947 but continued to fall short of requirements. Domestic production rose in response to the greatly improved labor-management relationship and to the highest price on record. Production from scrap at primary plants likewise rose and imports gained substantially. Not only was more lead made available as indicated, but, in helping to take care of demand, producers' stocks were cut in half and Government inventories were reduced to a very small tonnage.

Prepared by Helena M. Meyer and Alethea W. Mitchell, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Performance of the zinc group surpassed that for lead. Shipments of zinc oxide (lead-free), for example, virtually duplicated the peak rate established in 1928-29, advancing, however, only 2 percent above the high total for 1946. Leaded zinc oxide shipments were larger than ever before being 10 percent higher than in 1946 and 9 percent above the previous record in 1941. Lithopone shipments advanced 13 percent over 1946, were the largest since 1941, and except for that year and the period 1927-29 were higher than ever before.

Of the zinc compounds covered by this report zinc chloride shipments gained 12 percent over 1946 and may have established an all-time high record because the larger tonnage for 1920 is a production figure. Complete data are not available for the period 1935-41, which also makes a positive statement concerning a new record impossible. Zinc sulfate failed to establish a third-successive peak in 1947 by dropping 10 percent below the record established in 1946; shipments for 1947, however, were second only to those for 1946.

Total supplies of zinc in relation to requirements were again more abundant than lead, as evidenced by a sharp advance in deliveries for Government account (probably almost entirely for stockpiling). Production and imports were more than sufficient for current demand, but the large gain in shipments to the Government came largely from producers' inventories.

Some lead and zinc pigments and zinc salts shipped 1/ by domestic manufacturers in the United States, 1944-47, in short tons

	1944	1945	1946	1947
Basic lead sulfate 2/ or sublimed lead:				
White	5,253	2,235	(3)	(4)
Blue	1,080	1,660	(3)	(4)
Red lead	53,972	47,381	32,526	34,064
Orange mineral	284	230	123	------
Litharge	138,203	138,798	133,799	165,455
White lead:				
Dry	46,466	27,382	3/ 41,892	39,309
In oil 5/	39,260	23,788	24,609	30,968
Zinc oxide	140,675	127,955	157,851	160,305
Leaded zinc oxide	64,395	62,598	67,971	75,072
Lithopone	142,905	136,161	147,001	165,976
Zinc chloride, 50°B	57,545	56,230	57,316	64,210
Zinc sulfate	17,156	20,854	24,931	22,552

1/ Designated as sold in 1944.
2/ Exclusive of basic lead sulfate used for the manufacture of leaded zinc oxide which is included in tonnages shown for that pigment.
3/ Basic lead sulfate included under white lead (dry) in 1946; Bureau of Mines not at liberty to publish.
4/ Bureau of Mines not at liberty to publish.
5/ Weight of white lead only.

Prices for lead pigments were at new peaks at the end of 1946. Gains of 2 to 2 1/2 cents a pound were general in 1947, marking new all-time annual peaks for that year. Zinc pigments prices were at their highest levels for many years in 1946 and made further gains in 1947. The zinc pigments quotations rose 1 to 1 1/2 cents a pound compared with the advances of almost double such amounts for the lead varieties. Representative prices for the end of 1947 were as follows:

	Cents per pound
White lead, basic carbonate, bags, less carlots, works	16 1/4 - 16 1/2
Red lead, 95% Pb_3O_4 or less, barrels, less carlots, 5 tons, shipping point, freight allowed	18
Litharge, commercial, powdered, barrels, less carlots, 5 tons, shipping point, freight allowed	17
Zinc oxide, American process, commercial, lead-free, bags, less carlots, works	10 1/4
Zinc oxide, leaded, bags, less carlots, works, 5%	10 1/4
35%	12
50%	12 7/8

The most important items in foreign trade in lead and zinc pigments in the first 10 months of 1947 (12 months for 1946 shown in parentheses) were as follows: Exports of white lead (dry and in oil) totaled 792 (910) short tons; red lead, 622 (1,355) tons; litharge 1,054 (2,180) tons; zinc oxide, 16,275 (10,955) tons, and lithopone, 11,060 (9,651) tons. Imports (general) of red lead, litharge, zinc oxide and zinc sulfate were 22, 416, 132, and 125 short tons, respectively, for the first ten months of 1947. Figures on imports and exports are obtained from records of the U. S. Department of Commerce. Data covering the two chief classes of exports, by destinations, are given in the following table.

Zinc oxide and lithopone exported from the United States, January-October, 1947, by principal countries, in short tons

Zinc oxide		Lithopone	
Brazil	2,581	Argentina	380
Canada	1,722	Brazil	618
China	1,119	Canada	7,062
Cuba	513	Chile	901
France	1,254	Cuba	496
Hong Kong	325	Mexico	654
Netherlands	2,022	Other	949
Norway	893		11,060
Sweden	1,434		
Turkey	188		
Union of South Africa	1,258		
Uruguay	460		
Other	2,506		
	16,275		

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UNITED STATES DEPARTMENT OF THE INTERIOR

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MINERAL MARKET REPORTS
MMS NO. 1585

VALUE OF MINERAL PRODUCTION IN ALASKA INCREASES 15 PERCENT IN 1947

Although still considerably below the prewar level, total value of minerals produced in Alaska in 1947 increased 15 percent over 1946 to $14,341,000, according to the Economics and Statistics Division of the Bureau of Mines, United States Department of the Interior. The average value of Alaska's mineral output 1935-39 was $25,000,000 a year. Production gains in 1947 were made by all metals except mercury, platinum, and tungsten. Output of coal decreased 9 percent but the tonnage mined was the third largest on record. Other nonmetallics (sand and gravel and stone) were produced at approximately the same rate as in 1946.

An outstanding feature of the Alaska mineral production record for 1947 was the production of zinc, for the first time, from Alaska ores. The metal was recovered from zinc concentrates shipped to a smelter in the United States by the Big Four Mining Co.'s Maloney mine on George Inlet, 15 miles south of Ketchikan.

Gold mining operations which began to expand with the lifting of War Production Board Limitation Order L-208 in July 1945 continued the trend in 1946 and 1947. A total of 302,299 fine ounces of gold valued at $10,580,465 were produced compared with 226,781 ounces worth $7,937,335 in 1946.

The 1947 value of mineral output brings to $939,373,000 the total value of minerals produced in Alaska since the beginning of recorded mining in 1880.

Details on minerals produced in 1947 follow:

METALS

Total value of metals produced in 1947 was 11.5 million dollars compared with 9.4 million in 1946--an increase of 22 percent.

Gold and Silver.--Alaska lode and placer mines in 1947 yielded 302,299 fine ounces of gold valued at $10,580,465 compared with 226,781 ounces valued at $7,937,335 in 1946, a gain of 33 percent. Silver output in 1947 was 69,392 fine ounces valued at $62,800 compared with 41,793 ounces valued at $33,769 in 1946.

Prepared by Alfred L. Ransome and other members of the staff, Economics and Statistics Division, under the supervision of E. W. Pehrson, Chief.

Among the more important producers of gold from placer operations were: The United States Smelting Refining and Mining Co., which operated five connected-bucket dredges in the Fairbanks district; the New York Alaska Gold Dredging Co., operating a dredge in the Tuluksak-Aniak district; Yukon Placer Mining Co., operating a bulldozer and sluice box equipment on Walker's Fork Creek, Fortymile district; Alluvial Golds, Inc., operating a connected-bucket dredge on Woodchopper Creek, Circle district; Gold Placers, Inc., operating a dredge on Coal Creek, Circle district; Arctic Circle Exploration Co., operating a dredge on Candle Creek in the Fairhaven district; Cripple Creek Mining Co., operating in the Innoko district; Alder Creek Mining Co., operating a dragline, bulldozer, and hydraulic giant combination on Fairbanks Creek, Fairbanks district; Wade Creek Dredging Co., operating bulldozer and sluice box equipment on Jack Wade Creek, Fortymile district; and C. J. Berry Dredging Co., operating a dredge in the Circle district.

Lode gold mining remained at a low point in 1947. The difficulty of obtaining equipment and the mounting cost of mining, including labor and supplies, were the primary reasons for the relative inactivity in contrast to placer operations. The more important producers of gold in 1947 from lode operations were: The Cleary Hill Mines, Inc., operating the Cleary Hill mine and amalgamation-flotation mill in the Fairbanks district; the Nixon Fork Mining Co., operating the Nixon Fork mine and 50-ton stamp mill in the McGrath district; and the Palmer-Maybelle Gold Mines, Inc., operating the Mabel mine, and the Gold Cord Mining Co., operating the Gold Cord mine, in the Willow-Creek district. The Alaska Juneau mine remained inactive during the year with the exception of minimum maintenance work.

Copper, Lead, and Zinc.--Production of the base metals, copper, lead, and zinc, were limited to output from two mines in the Southeastern Alaska region. Copper output of 26,000 pounds valued at $5,434 was recovered as a byproduct from lead concentrate shipped from the Riverside mine near Hyder, operated by the J. H. Scott Co. Lead production of 528,000 pounds valued at $77,088 came almost entirely from the Riverside mine; shipments of lead concentrate from the mine to smelters in the United States were made almost entirely during the last half of the year following a special Act of Congress (House Bill 1293) which allowed the company to ship on foreign vessels. Available records indicate that zinc production of 22,000 pounds valued at $2,574 in 1947 was the first to be produced from Alaska ores. The metal was recovered from zinc concentrate shipped to a smelter in the United States during August from the Big Four Mining Co.'s Maloney mine on George Inlet, 15 miles south of Ketchikan. A small quantity of lead concentrate was produced also at the property from a 30-ton flotation and gravity concentration mill.

Mine production (based on mint and smelter receipts) of gold, silver, copper, lead, and zinc in Alaska, 1947, by months, in terms of recoverable metals

Month	Gold (Fine ounces)	Silver (Fine ounces)	Copper (Short tons)	Lead (Short tons)	Zinc (Short tons)
January--	41,394	6,455	-----------	-----------	-----------
February-	946	147	-----------	-----------	-----------
March-----	834	127	-----------	-----------	-----------
April-----	352	1,052	-----------	15	-----------
May-------	2,242	463	-----------	-----------	-----------
June------	17,304	2,933	-----------	-----------	-----------
July------	44,215	6,896	-----------	-----------	-----------
August----	47,776	7,432	-----------	2	11
September	34,440	13,746	3	105	-----------
October--	72,796	17,141	4	54	-----------
November-	30,000	7,000	2	34	-----------
December-	10,000	6,000	4	54	-----------
Total, 1947	302,299	69,392	13	264	11
1946	226,781	41,793	2	115	-----------

Platinum metals.--Next to gold, the platinum metals are the most important metallic minerals produced in Alaska. The output of platinum metals, which were mined with a dragline dredge and a connected bucket dredge from placer deposits in the Goodnews Bay district in southwestern Alaska by the Goodnews Bay Mining Co., declined about 40 percent from the 22,882 troy ounces produced in 1946.

Tungsten.--The J. H. Scott Co. milled a small quantity of tungsten ore at its Riverside mine near Hyder.

Other metals.--No production of antimony, chromite, mercury or tin was reported in 1947.

FUELS

Total value of coal produced in 1947 was $2,051,000 compared with $2,359,000 in 1946--a decrease of 13 percent. The quantity mined dropped 9 percent to an estimated 335,000 net tons compared with the record output of 368,000 tons in 1946. The higher rate of production in both years over 1945 was due in part to the smaller shipments of coal from the continental United States. About 7,000 tons were receive in 1947, 7,865 in 1946, and 36,599 in 1945.

OTHER NONMETALS

Total output of the other nonmetals in 1947 was approximately the same as in 1946 and was valued at less than $1,000,000. The products included sand and gravel and stone. From time to time asbestos and jade have been produced in Alaska.

Mineral production in Alaska, 1945-47

Product	1945 Quantity	1945 Value	1946 Quantity	1946 Value	1947 (estimate) Quantity	1947 (estimate) Value
Arsenic------short tons	(1)	(1)	(1)	(1)	(1)	(1)
Coal------do--	297,644	$1,868,592	368,000	$2,359,000	335,000	$2,050,700
Copper------pounds	10,000	1,350	4,000	648	26,000	5,434
Gems and precious stones------	--------	(2)	--------	(2)	--------	(2)
Gold------troy ounces	68,117	2,384,095	226,781	7,937,335	302,299	10,580,465
Lead------short tons	11	1,892	115	25,070	264	77,088
Mercury------flasks (76 pounds)----	(3)	(3)	699	68,670	-------	----------
Ores (crude), etc.:						
Copper------short tons	6	(4)	______	______	(1)	(4)
Dry and siliceous (gold and silver)------do--	6,506	(4)	8,979	(4)	(1)	(4)
Lead------do--	------	--------	1,819	(4)	(1)	(4)
Zinc-lead------do--	------	--------	------	--------	(1)	(4)
Platinum metals (crude)------troy ounces	26,505	(3)	22,882	(3)	(3)	(3)
Sand and gravel------short tons	(3)	(3)	(3)	(3)	(3)	(3)
Silver------troy ounces	9,983	7,099	41,793	33,769	69,392	62,800
Stone------short tons	(3)	(3)	(3)	(3)	(3)	(3)
Tungsten ore (60-percent conc.)------do--	--------	--------	19	(3)	(1)	(1)
Zinc------do--	--------	--------	--------	--------	11	2,574
Miscellaneous 5/------	--------	5,910,704	--------	2,005,241	-------	1,562,000
Total	--------	10,174,000	--------	12,430,000	------	14,341,000

1/ Figure not available.
2/ No canvass.
3/ Value included with "Miscellaneous."
4/ Not valued as ore; value of recoverable metal content included under the metals.
5/ Includes minerals indicated by "3/" above.

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MINERAL MARKET REPORT
MMS NO. 1586

MINE PRODUCTION OF LEAD IN THE UNITED STATES IN 1947 - PRELIMINARY ANNUAL FIGURES

Despite extraordinary consumer demands which boosted the lead price to record-breaking levels during 1947, the domestic mine output of lead, except for 1946, was the smallest since 1938, according to the Bureau of Mines, United States Department of the Interior. In 1947 the total mine production of lead in the United States (including that made into pigments) was 375,267 short tons, an increase of 12 percent over 1946. At the average weighted yearly price of $0.146 per pound, which includes allowance for premiums paid for overquota production, the 1947 domestic mine output was valued at $109,577,964. This compares with a value of $73,133,550 in 1946, which was calculated at the average weighted price for that year of $0.109. The market price for common lead, New York, was quoted at $0.1255 per pound until January 7, 1947 (the previous record high, which prevailed for a brief period in June 1917, was $0.1225, New York). On January 7 the price advanced to $0.13 per pound and a further advance to $0.14 on February 25. Several days later on March 3 domestic producers again advanced the price to $0.15 per pound at which level it remained the balance of the year.

The end of the Premium Price Plan on June 30, 1947 had very little effect on the domestic mine output of lead because the prevailing market price of lead ($0.15 per pound) was approximately equal to the maximum price per pound obtainable under Government subsidies. Some zinc-lead mines, such as those in the Tri-State (Kansas, Oklahoma and Missouri region) which derived a substantial revenue in the form of zinc premiums were forced to close, however. According to a Bureau of Mines survey, covering July, August, September and October 1947, 51 domestic mines that produced some lead closed directly or indirectly because of the expiration of Government subsidies. Lead production from these mines while operating had averaged 560 short tons monthly in 1946 and 600 tons in 1947.

This report which summarizes mine output for 1947 is part of the regular monthly lead mine production series. As preliminary figures for November and estimates for December are included, the report serves for both those months and the next issue will be for January 1948. The following table and State reviews for 1947 were obtained from current preliminary reports of the western field offices of the Bureau of Mines, the principal source of information used in the preparation of all the reports in the series. The figures are given in terms of recoverable lead content of ores and concentrates.

Prepared by Richard H. Mote, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Eastern States

Mine production of lead in the Eastern States, nearly all recovered from zinc-lead ore, totaled 5,040 short tons in 1947, a decline of 10 percent from the 1946 output. Virginia mines produced 3,525 tons compared with 4,381 tons in 1946. The Austinville mine and 2,000-ton flotation mill in Wythe County, which has been in continuous operation since 1924, operated at approximately the same average monthly rate as in 1946. Lead production in New York increased from 1,073 tons to 1,500 tons. Some lead was recovered in Tennessee from lead carbonate ore mined by the Tennessee Zinc Co. operating in the Embreeville district of Washington and Unicoi Counties.

Central States

Total lead output from mines in the Central States decreased 5 percent in 1947. Although the principal straight lead mines operated throughout the year, the rate of ore extraction was generally lower than in 1946 and much development work was necessary to replenish ore reserves drawn upon during the war. The quantity of lead produced by zinc-lead mines did not decrease materially. Mines in the Southeastern Missouri region produced about 128,500 tons, approximately 35 percent of the United States total mine output, compared with 135,796 tons or 40 percent of the United States total in 1946. The St. Joseph Lead Co., the principal producer of lead, continued to operate the Federal, Leadwood, Desloge, and Bonne Terre groups of mines in St. Francois County and made preparations to reopen the old Doe Run group, idle since 1913. In Madison County the producing mines and active mills were the Mine La Motte group and 1,500-ton mill, operated by the St. Joseph Lead Co.; the St. Louis Smelting & Refining Co. Madison lead-copper group and 600-ton mill; the Park City Consolidated Mines Co. Ruth mine and 500-ton mill; and the Fredericktown Lead Co. Catherine-Fleming group and 400-ton mill. In Jefferson County the Valle Mines leases and 200-ton mill of the DeSoto Lead & Zinc Co. were taken over by the Fredericktown Lead Co. in May; the mill was operated on ore from dumps, and considerable work was done on opening and sampling old underground workings.

The Tri-State district (Joplin region) embracing southwestern Missouri, southeastern Kansas, and northeastern Oklahoma produced 6 percent of the total domestic lead output in 1947 compared with 7 percent in 1946. After the Premium Price Plan expired June 30, 1947 more than half the district mines and all but 2 of the tailing mills shut down, and many of them remained idle or operated for a short time only the rest of the year. In southern Illinois the Ozark-Mahoning Co. continued to operate its fluorspar zinc-lead mines in the Cave in Rock area and flotation mill at Rosiclare. Besides company ore, the mill treated ore and bulk concentrates containing zinc, lead, and fluorspar from other mines in Illinois and Kentucky. The Patrick open-pit lead mine of the Alco Lead Co., also in Illinois, continued operation except from May 1 through August, when the company was building a new flotation mill. The Vinegar Hill Zinc Co. custom flotation mill at Cuba City, Wisconsin, maintained production throughout the year by treating ore from the Office of Metals Reserve stock pile after shipments from the mines decreased.

Western States

Mine production of recoverable lead in the combined Western States was 213,363 tons in 1947, a 29-percent gain over 1946, and the largest output since 1943. The Western States contributed 57 percent of the total domestic output compared with 49 percent in 1946.

Arizona. - Continuous operations of lead and zinc-lead mines in Arizona in 1947 resulted in an output of 27,500 tons of recoverable lead, the largest in any year in the history of the State, and 15 percent greater than the record output of 1946. The 900-ton flotation mill at the Copper Queen branch of the Phelps Dodge Corp. at Bisbee treated more zinc-lead ore in 1947 than in 1946, and the property remained by far the largest producer of both lead and zinc in Arizona. Other large producers of lead were the Mammoth-St. Anthony property at Tiger, the San Xavier (Eagle-Picher Mining & Smelting Co.) south of Tucson, the Iron King mine at Humboldt, and the Trench-Flux group near Patagonia. In 1947 these five properties produced 86 percent of the State lead output. About 93 percent of the lead output was recovered from zinc-lead ore, and the rest largely from lead ore.

California. - The California mine production of recoverable lead was 10,190 tons in 1947, the highest since 1917. Nearly two-thirds of the State lead output was produced at the Anaconda Copper Mining Co. Darwin Mines, Coso district, Inyo County. Shoshone Mines (Columbia No. 2), Resting Springs district, Inyo County, operated by the Finley Co. during the first half of 1947, and by the Anaconda Copper Mining Co. during the last six months, again ranked second, and the Louis Warnken Jr. operation in the Calico district, San Bernardino County was third.

Colorado. - Mine output of lead in Colorado in 1947 was 18,160 tons, an increase of 7 percent over 1946. After the ending of the Premium Price Plan on June 30, lead production increased materially because several operators shifted underground work to higher-grade sections of their mines. Among the producers were the American Smelting & Refining Co. Leadville Milling Unit, Resurrection Mining Co., and John Hamm Mining & Milling Co. Ltd. in Lake County; Shenandoah-Dives Mining Co. and Denver Equipment Co. in San Juan County; Telluride Mines, Inc. in San Miguel County; Idarado Mining Co. in Ouray County (ore body in San Miguel County and production credited there); and Rico Argentine Mining Co. in Dolores County.

Idaho. - Idaho was again the largest producer of lead in the Western States and second only to Missouri in the United States. Output gained 26 percent in 1947 owing largely to the production in the Coeur d'Alene region of zinc-lead ore containing a higher lead content and to a greater output of lead-silver ore from mines in the same region. The Bunker Hill & Sullivan mine was the largest lead producer in Idaho in 1947. Other large producers of lead in order of output were the Star, Page, Morning, Sherman, Sidney, Sweeny tailings, Osburn tailings, Dayrock, Frisco, Tamarack & Custer, Triumph, and Monitor properties; the first 9 properties — each with an output of more than 2,000 tons of lead -- produced 67 percent of the State total. About 95 percent of the State lead output came from properties in the Coeur d'Alene region; the remainder came largely from the Warm Springs, Alder Creek, and Bayhorse districts. Zinc-lead ore and old tailings supplied 91 percent of the total lead, and lead ore and silver ore most of the remainder.

Montana. - Lead production in Montana in 1947 was 15,500 tons, an increase of 87 percent over 1946, and the largest yearly output since 1943. Most of the gain came from greatly expanded operations of the Butte mine and dumps of the Anaconda Copper Mining Co. which supplied 47 percent of the State lead output. Other operations which produced more than 500 tons of recoverable lead during the year were the Mike Horse and Emma mines, which together with the Butte mine and dumps, furnished 75 percent of the State lead in 1947. Other substantial producers were the Toledo-Buckeye, Poulin, Jack Waite, and Travona mines and the East Helena slag-fuming plant of the Anaconda Copper Mining Co.

Nevada. - Mine production of lead in Nevada in 1947 was 7,330 tons approximately half of which came from mines in the Pioche district, Lincoln County. Most of the lead was recovered from concentrates produced by the Combined Metal Reduction Company's Pioche mill. The Salt Lake-Pioche Mining Co. was the district's principal producer of lead shipping ore.

New Mexico. - Mine production of recoverable lead in New Mexico was 6,108 tons, an increase of 25 percent over 1946. The principal producers were the Hanover Unit of the American Smelting Co., United States Smelting, Refining & Mining Co. Bayard mine, Peru Mining Co., Empire Zinc Co. Hanover mine group, Kennecott Copper Corporation Oswaldo mine, all in the Central district, Grant County; and the American Smelting & Refining Co. Magdalena Unit (Waldo mine) in the Magdalena district.

Utah. - Mine production of lead in Utah in 1947 was 48,100 tons, 57 percent greater than in 1946, and the largest output since 1944. Lead output at the United States & Lark property in the West Mountain (Bingham) district was more than double that in 1946. Other large producers were the Chief Consolidated Mining Co., Silver King Coalition Mines Co., New Park Mining Co., Park Utah Consolidated Mines Co., Combined Metals Reduction Co., Pacific Bridge Co., International Smelting & Refining Co. smelter slag dump, and the Metal Producers, Inc. These 9 producers contributed 91 percent of the State total lead output in 1947.

Washington. - Mine production of recoverable lead in Washington in 1947 was 4,600 tons, was the greatest of any peacetime year and was exceeded only in the years, 1942-44, inclusive. The three leading producers were the American Zinc Lead & Smelting Co. and the Pend Oreille Mining & Leasing Co. in the Metaline district and the Bonanza mine in Stevens County. These three properties contributed 84 percent of the State lead output in 1947. Other important producers were Kaaba Silver-Lead Mines, Inc., Metaline Mining & Leasing Co., and Zenith Mines, Inc. (Cleveland mine).

Small quantities of lead were recovered from ores mined in Oregon, South Dakota and Texas.

Alaska

Lead production of 264 tons in Alaska came almost entirely from the Riverside mine near Hyder. Shipments of lead concentrate from the mine to smelters in the United States were made almost entirely during the last half of the year following a special Act of Congress (House Bill 1238) which permitted the company to ship on foreign vessels.

Mine production of recoverable lead in the United States in 1947, by months 1/, in short tons

Region and State	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Eastern States...	336	384	435	469	438	420	457	409	455	445	394	398	5,040
Central States...	14,501	13,490	14,287	13,834	13,434	13,195	12,255	12,174	12,107	13,666	11,880	11,777	156,600
Western States:													
Arizona........	2,330	2,100	2,230	2,410	2,300	2,480	2,300	2,220	2,180	2,380	2,270	2,300	27,500
California.....	980	1,090	1,410	1,300	980	850	620	640	760	510	550	500	10,190
Colorado.......	1,210	1,100	1,340	1,450	1,470	1,675	1,250	1,628	1,732	1,830	1,800	1,675	18,160
Idaho..........	6,000	5,585	5,850	6,200	6,000	6,625	6,150	6,500	6,320	6,870	6,900	6,750	75,750
Montana........	770	1,090	1,140	1,500	1,650	1,290	1,300	1,400	1,330	1,370	1,300	1,360	15,500
Nevada.........	550	520	580	550	680	630	625	675	560	600	680	680	7,330
New Mexico.....	382	374	358	399	494	460	500	546	611	674	650	660	6,108
Oregon.........	-	-	-	1	1	2	2	1	1	1	2	-	11
South Dakota...	-	-	-	-	-	-	-	-	-	7	-	5	12
Texas..........	2	9	9	11	-	-	2	7	6	15	18	23	102
Utah...........	3,680	3,740	4,020	4,400	4,950	4,460	3,240	3,980	4,045	3,740	3,800	4,045	48,100
Washington.....	325	335	475	440	375	365	405	415	435	350	340	340	4,600
	16,229	15,943	17,412	18,661	18,900	18,837	16,394	18,012	17,980	18,347	18,310	18,338	213,363
Alaska 2/........	-	-	-	15	-	-	-	2	105	54	34	54	264
Total United States.........	31,066	29,817	32,134	32,979	32,772	32,452	29,106	30,597	30,647	32,512	30,618	30,567	375,267

1/ Revised figures.
2/ Alaska monthly totals based on smelter receipts.

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

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FOR RELEASE MARCH 2, 1948.

MINERAL MARKET REPORT
MMS. NO. 1587

FELDSPAR IN 1946

In 1946, the production of crude feldspar in the United States exceeded a half-million tons according to reports submitted by producers to the Bureau of Mines, United States Department of the Interior. Output of "aplite" also increased sharply to a new record. Imports of Canadian crude feldspar increased 10 percent and were the highest since 1930. Receipts of crude nepheline syenite (all from Canada) again were higher than in any previous year.

DOMESTIC PRODUCTION

Crude feldspar. - Output of crude feldspar in 1946 rose to 508,380 long tons valued at $2,594,099, again breaking all existing records in both quantity and value, and surpassing the former high year, 1945, by 36 percent in quantity and 28 percent in value.

Crude feldspar sold or used by producers in the United States, 1944-46
(Value at mine or nearest shipping point)

State	1944		1945		1946	
	Long tons	Value	Long tons	Value	Long tons	Value
Arizona	(1)	(1)	(1)	(1)	(1)	(1)
California	(1)	(1)	(1)	(1)	....	....
Colorado	15,787	$81,967	26,279	$105,021	37,312	$145,975
Connecticut	11,390	75,394	11,705	74,778	16,555	98,407
Georgia	....	....	....	....	(1)	(1)
Maine	8,011	47,892	10,974	62,287	18,922	110,237
New Hampshire	(1)	(1)	(1)	(1)	(1)	(1)
New York	(1)	(1)	(1)	(1)	(1)	(1)
North Carolina	122,857	778,007	148,493	863,740	230,367	1,200,638
Pennsylvania	(1)	(1)	(1)	(1)	....	....
South Dakota	64,806	288,188	68,374	314,787	74,540	299,852
Texas	(1)	(1)	(1)	(1)	(1)	(1)
Virginia	24,010	147,106	29,089	178,664	32,960	204,588
Wyoming	22,415	81,770	17,021	62,614	20,345	83,496
Undistributed 2/	58,132	313,613	61,119	359,638	77,379	450,906
	327,408	1,813,937	373,054	2,021,529	508,380	2,594,099

1/ Included under "Undistributed."
2/ Includes States indicated by "(1)."

Prepared by Robert W. Metcalf under the supervision of G. W. Josephson, Acting Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Production of crude spar in North Carolina eclipsed the previous record year 1945 by 55 percent. Virginia increased its output of crude spar by 13 percent. Large gains in production were shown in the New England States. Outputs in South Dakota, the second highest producing State, Wyoming, and Colorado in 1946 were 9, 20, and 12 percent, respectively higher than in 1945. Moderate increases in tonnage occurred in Arizona, New York, and Texas.

Ground feldspar. - Sales of ground feldspar by merchant mills in 1946 were 23 percent in quantity and 26 percent in value higher than in the former peak year 1945. Sales of feldspar of Canadian origin ground in merchant mills in the United States in 1946 increased 64 percent compared with 1945, but comprized 3 percent of the total merchant sales. Production from North Carolina and Tennessee mills supplied 44 percent of the total sales of feldspar ground in the United States in 1946.

Ground feldspar sold by merchant mills1/ in the United States, 1944-46

State	1944			1945			1946		
	Active mills	Short tons	Value	Active mills	Short tons	Value	Active mills	Short tons	Value
Arizona.....	1	(2)	(2)	1	(2)	(2)	1	(2)	(2)
California..	3	1,188	$17,688	3	809	$11,911	2	294	$5,276
Colorado....	3	45,365	318,696	3	41,433	307,619	2	55,251	448,011
Connecticut.	1	22,079	409,875	2	19,139	355,578	2	22,464	405,828
New Jersey..	3			2			2		
Illinois....	1	(2)	(2)	1	(2)	(2)	1	(2)	(2)
Maine.......	2	11,184	178,049	2	9,746	156,618	3	14,822	235,636
N.Hampshire.	2	(2)	(2)	3	(2)	(2)	2	(2)	(2)
New York....	3	(2)	(2)	3	(2)	(2)	3	(2)	(2)
N. Carolina.	3	110,251	1,326,861	4	142,208	1,665,634	4	207,527	2,194,552
Tennessee...	2			2			2		
South Dakota.	2	(2)	(2)	2	(2)	(2)	2	(2)	(2)
Virginia....	2	(2)	(2)	2	(2)	(2)	2	(2)	(2)
Undistributed3/.	.....	153,134	1,611,867	.....	168,393	1,749,601	.....	169,841	2,056,804
	28	343,201	3,863,036	30	381,728	4,246,961	28	470,199	5,346,107

1/ Excludes potters or others who grind for consumption in their own plants.
2/ Included under "Undistributed."
3/ Includes items indicated by "(2)."

North Carolina in 1946 was by far the largest producer of ground feldspar, followed by South Dakota, Colorado, Tennessee, and New Hampshire.

CONSUMPTION AND USES

Crude feldspar. - Most crude feldspar is sold to merchant mills, which grind or otherwise process the spar and sell it to the ultimate consumers. However, a few pottery and enamel manufacturers and some makers of scouring soap and sweeping compounds mine or purchase crude feldspar and prepare it for use in their products in their own mills.

Ground feldspar. - Ceramic industries in 1945 and 1946 consumed 99 percent of the ground feldspar sold by merchant mills. Sales of ground spar to the glass industry in 1946 rose to a new record, 16 percent above the former high reported in 1945. Sales to potteries were also the highest yet recorded, 21 percent greater than the previous high year, 1941, and 38 percent higher than in 1945. Ground feldspar consumed in enamel manufacture in 1946 rose 64 percent compared with 1945, but was still considerably under the 1941 level.

Ground feldspar sold by merchant mills in the United States, 1944-46

Use	1944		1945		1946	
	Short tons	Percent of total	Short tons	Percent of total	Short tons	Percent of total
Ceramic:						
Glass..................	220,734	64.3	249,927	65.5	289,559	61.6
Pottery................	106,341	31.0	111,695	29.3	154,340	32.8
Enamel.................	8,464	2.5	13,755	3.6	22,500	4.8
Other ceramic uses......	849	.2	1,747	.4	144	....
Soaps and abrasives........	6,424	1.9	4,245	1.1	3,081	.7
Other uses................	389	.1	359	.1	575	.1
	343,201	100.0	381,728	100.0	470,199	100.0

Reports from merchant grinders in 1946 indicated that more ground feldspar was shipped to Pennsylvania than to any other State, closely followed by Illinois and West Virginia. Indiana, Ohio and New Jersey were the next largest States of destinations of shipments. In recent years, increased shipments to southern and southwestern States have been especially noteworthy.

NEPHELINE SYENITE

The nepheline syenite used in ceramics in the United States has originated almost wholly from the Blue Mountain deposite of American Nepheline, Ltd. near Cokefield, Peterborough County, Ontario, Canada.

Efforts to develope United States deposites of nepheline-bearing rocks have been made in New Jersey and Arkansas. The former were not considered suitable for ceramic use. Detailed tests of the Arkansas material are continuing and have given some hope of their possible application in ceramics.

APLITE

Virtually the entire output of "aplite" is used in the making of glass products, particularly glass containers. Sales of aplite in 1946 increased nearly 45 percent compared with 1945 and established a new record. Aplite is mined in Amherst and Nelson Counties, Virginia, by two firms, Dominion Minerals, Inc., Piney River, Virginia, and Carolina Mineral Co., Inc., Kona, North Carolina. Both firms operate mills near Piney River, Virginia.

IMPORTS

Feldspar. - Imports for consumption of crude feldspar into the United States in 1946 totaled 16,365 long tons valued at $127,654, 10 percent higher than in 1945, and the highest year since 1930. All the crude spar except 2 tons from the United Kingdom originated in Canada.

Nepheline syenite. - Crude nepheline syenite imported for consumption in the United States in 1946 were the largest yet reported, 51,852 short tons valued at $206,613.

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MINERAL MARKET REPORTS
M. M. S. NO. 1588

ZINC INDUSTRY IN 1946

Work stoppages due to labor strikes, higher operating costs and price uncertainty when Government subsidies lapsed temporarily at midyear were major obstacles which restricted domestic zinc output in 1946, according to the Bureau of Mines, United States Department of the Interior. However, despite a drop in production and imports, the over-all available supply of slab zinc was sufficient to meet requirements and permit expansion of consumers' stocks. Domestic mine production was 6 percent less than in 1945, and the outputs of primary and redistilled secondary slab zinc were 5 percent and 10 percent lower, respectively. The drop in domestic smelter output was partially offset, however, by an 8 percent gain in slab zinc imports the quantity of which in 1946 was the greatest in the history of the zinc industry. Imports of zinc in ores and concentrates dropped 29 percent from 1945. Year-end inventories at domestic smelters were 31 percent less than at the beginning, whereas consumers' stocks gained 28 percent over the quantity on hand at the beginning of the year. The St. Louis quotation for Prime Western zinc averaged 8.73 cents per pound in 1946 compared with 8.25 cents in 1945.

Most significant among the many labor problems confronting operators during 1946 were the widespread strikes at principal mines, mills, smelters, and refineries which paralyzed the industry the first half of the year. Work stoppages in 1946 began in Utah on January 21 when approximately 1,300 workers at the American Smelting & Refining Co. Murray lead smelter and the United States Smelting, Refining & Mining Co. West Mountain (Bingham) district lead-zinc mine and Midvale concentrator went on strike following collapse of negotiations for increased wages. Workers at certain Colorado and Arizona lead-zinc mining and milling operations of the American Smelting & Refining Co. and of the Phelps Dodge Corporation joined the strike on February 25 and March 20, respectively. Lead smelters operated by the American Smelting & Refining Co. in California, Colorado, Montana, Nebraska, New Jersey, and Texas also became strike-bound on February 25, and although these closures did not restrict the output of mines producing zinc alone, many zinc-lead operations were forced to close owing to limited storage facilities for ore and concentrate and insufficient capital without prompt sale of products to cover operating expenses. Zinc mine production in the Eastern States was impeded by labor strikes at mines in Tennessee and New Jersey.

Government regulations. - Except for a few minor regulations, the zinc industry operated throughout 1946 free of Government controls. At the end of the year Priorities Regulation No. 32 limiting manufacturers' inventories of all grades of slab zinc and die-cast alloy to 30 days' requirements or a practicable working inventory, whichever is less, remained operative. Regulations requiring a license for the export to certain countries of slab zinc and zinc semi-manufactures also remained operative during the year.

Prepared by Richard H. Mote and Esther B. Miller, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Subsidy payments under the Premium Price Plan for overquota production were continued through June but collapsed with the expiration of the Office of Price Administration and ceiling prices June 30. Upon reestablishment of the OPA, provisions were made for retroactive premium payments to cover the period when no plan was in effect.

Production. - Mine production of recoverable zinc (including that recovered as zinc pigments and salts directly from ore) was 574,833 short tons in 1946, a decrease of 6 percent from 1945 and the smallest since 1938. The uninterrupted drop in output from the wartime peak in 1942 was essentially due to prolonged strikes at mines and smelters, especially in western United States, and a continued shortage of labor. Idaho continued to be the largest producer of zinc in the United States although 1946 output was 14 percent below the 1945 production. Oklahoma and New Jersey ranked second and third in the United States. The Western States contributed 48 percent of the total domestic output of zinc despite a 7 percent decline to the lowest level of production since 1940. Zinc production in the Central States, smallest since 1933, decreased 1 percent from the 1945 output. The Tri-State (Joplin) region maintained its position as the principal zinc-producing district, with 24 percent (23 percent in 1945) of the total United States output.

The output of primary slab zinc in 1946, the smallest since 1940, dropped 5 percent below the 1945 production. Of the 44,516 short tons of redistilled secondary slab zinc produced, 18,408 tons (41 percent) were derived from primary smelters, and 26,108 tons (59 percent) were produced at secondary plants. Data on the output of remelted secondary slab zinc are not included with those for redistilled metal. Montana was the leading producer of primary slab zinc in 1946. Pennsylvania, which displaced Montana for first place in 1945, ranked second in 1946 and was followed by Oklahoma.

Zinc-reduction plants. - During 1946 there were 21 primary zinc-reduction plants in operation, of which 12 operated with horizontal retorts exclusively, 1 with horizontal and vertical retorts, 3 with vertical retorts exclusively (one electrothermic), and 5 with electrolytic methods. The total number of retorts reported at active horizontal-retort primary plants in 1946 was 73,240, a decrease of 1 percent from the 74,120 retorts on December 31, 1945 at plants which operated during that year. Of the total retorts reported, 54,272 (74 percent) were in use at the close of 1946. Four vertical-retort continuous distilling plants operated during 1946. The St. Joseph Lead Co. operated its 9 electrothermic units at Josephtown, Pa. at about 90 percent capacity throughout the year. Of the 66 vertical retorts at the remaining 3 plants, 62 were in operation on December 31, 1946. Five electrolytic plants were in operation during 1946, as in 1945. There were 3,670 cells at the plants on December 31, 1946, of which 3,128 were in operation.

Smelting capacity. - At the close of 1946 zinc-reduction plants were operating at an indicated 72 percent of a reported 1,067,800-ton capacity. Horizontal- and vertical-retort plants operated at 73 percent of a stated 641,000-ton capacity, electrolytic plants at 74 percent of a 382,400-ton capacity, and secondary smelters at 59 percent of a 44,400-ton capacity.

Consumption. - According to reports from plants representing an estimated 99 percent of the consuming industry in the United States (670 plants in 1946), 801,242 tons of slab zinc (including 3,912 tons of purchased remelt spelter) were put in process in 1946, a 6-percent decline from the 1945 total of 852,311 tons and 10 percent below the record level of 888,626 tons in 1944. The apparent discrepancy between this figure and the calculated 866,171 tons of primary and secondary slab zinc and remelt spelter shipped to domestic consumers in 1946 can be attributed to incomplete coverage of the survey, variations in the quantity of metal in transit from producer to consumer at the beginning and the end of the year, and unaccounted-for slab zinc stored in bonded warehouses. Galvanizing continued as the principal use of slab zinc, although the quantity consumed for this purpose in 1946 declined 5 percent. The use of slab zinc fell off sharply, owing largely to labor strikes at the brass mills and the increasing use of brass scrap in lieu of virgin metal. The quantity of zinc used for zinc-base alloys reached an all-time high of 212,211 tons, a gain of 62 percent over 1945.

The domestic production of rolled zinc declined 5 percent in 1946, but remained substantially above prewar levels. The total value of the rolled products was 5 percent more than in 1945 owing to a moderate advance in price. The output of sheet zinc increased 62 percent, whereas the production of boiler plate and strip and ribbon zinc declined 47 and 19 percent, respectively. Strip and ribbon zinc remained the largest item produced, accounting for 67 percent of the total production (78 percent in 1945).

During 1946, the zinc rolling mills reported the consumption of 92,397 tons of slab zinc and 3,313 tons of purchased zinc scrap compared with 97,589 tons of slab zinc and 3,652 tons of purchased zinc scrap in 1945. In addition 18,670 tons of strip and ribbon zinc was remelted and rerolled from scrap originating in fabricating plants operated in connection with zinc rolling mills.

Stocks. - Inventories of slab zinc at producers' plants dropped 31 percent in 1946 and were the lowest recorded since 1943. Nearly the entire decline can be accounted for by reduced inventories of Prime Western (75 percent) and Special High Grade and Regular High Grade (27 percent).

Stocks of slab zinc at consumers' plants increased markedly in 1946, the total on December 31 being 28 percent over the quantity on hand at the beginning of the year. Inventories increased abruptly at the first of the year to a high of about 116,300 tons on May 31, followed by a general downward trend during the remainder of the year. At the average monthly rate of consumption in 1946, consumers' stocks on hand at the end of 1946 were slightly more than 1 month's requirements.

Prices. - The base ceiling price established by the Office of Price Administration of 8.25 cents a pound for Prime Western grade slab zinc at St. Louis remained unchanged through June 30. A bill to extend the OPA was vetoed by the President on June 29 and on July 3 the price of zinc advanced to 9.50 cents, St. Louis. With the reestablishment of the OPA by legislative action on July 25, the former ceiling price of 8.25 cents became effective and prevailed until October 14 when the OPA announced an upward revision in the ceiling price of 1 cent per pound, establishing the market at 9.25 cents, St. Louis. The decontrol order issued by the President on November 9 included the removal of ceiling prices from all metals and opened the way for a further price advance on November 12 to 10.50 cents, St. Louis, the highest quotation on Prime Western zinc since March 1917. The weighted average price received by the producers for all grades of zinc sold in 1946 was 8.9 cents a pound, f.o.b. plants, compared with 8.6 cents in 1945.

The general policy of the Quota Committee pertaining to the Premium Price Plan for overquota mine production of domestic zinc, (copper and lead were also included) prevailed through June but collapsed with the expiration of OPA and ceiling prices on June 30. Upon reestablishment of the OPA in late July provisions were made for retroactive premium payments to cover the period when no plan was in effect. The Premium Price Plan was extended until June 30, 1947, under the same terms as in the past except that incorporated in the subsidy section of the bill extending the OPA was a provision that "adjustments shall be made to encourage exploration and development work and adequate allowances for depreciation and depletion". The bill further provided that all classes of premiums were non-cancelable unless necessary in order to make individual adjustments of income to specific mines. With the abandonment of metal price ceilings on November 9, subsidies to mines financially aided by the Premium Price Plan were computed with average monthly market quotations as a base.

The official London maximum price of £31 5s per long ton, duty paid, for foreign zinc delivered to consumers, fixed by the British Ministry of Supply on June 11, 1945 was advanced to £39 5s on April 8, 1946. Subsequent price advances during the year occurred on July 1 and November 13 when quotations rose to £50 and £55, respectively. The London price remained unchanged the balance of the year but was raised to £70 per long ton beginning January 1, 1947. Quotations of the London Metal Exchange, discontinued at the outbreak of the war in September 1939, were not resumed during 1946.

Foreign trade. - Total imports of zinc in ores and concentrates in 1946 declined 29 percent from 1945. Of the 272,056 tons of zinc imported in ore and concentrates in 1946, approximately 47 percent came from Mexico, 21 percent from Canada, 18 percent from Peru, 10 percent from Bolivia, 3 percent from Argentina, and 1 percent from Australia. Slab zinc imports increased 8 percent over 1945 and were the greatest of any year in the history of the zinc industry. A 56-percent decrease in imports from Mexico were more than offset by an 83-percent gain in the quantity of slab zinc imported from Canada. Exports of slab zinc were 37,431 tons in 1946 compared with 7,782 tons in 1945. United Kingdom received 34 percent of the total.

Table 1. - Primary and redistilled secondary slab zinc produced in the United States, 1945-1946, in short tons

Year	Primary			Redistilled secondary	Total (excludes remelted)
	Domestic	Foreign	Total		
1945............	467,084	1/297,477	764,561	49,242	813,803
1946............	459,205	269,057	728,262	44,516	772,778

1/ Includes a small tonnage of foreign slab zinc further refined into high grade metal in the United States.

Table 2. - Distilled and electrolytic zinc, primary and secondary, produced in the United States, 1945-1946, in short tons

A. - Classified according to method of reduction

Year	Electrolytic primary	Distilled primary	Redistilled secondary		Total
			At primary smelters	At secondary smelters	
1945......	269,924	494,637	21,205	28,037	813,803
1946......	281,295	446,967	18,408	26,108	772,778

B. - Classified according to grade

	Special High Grade	Regular High Grade	Intermediate	Brass Special	Selected	Prime Western	Total
1945......	220,241	191,639	49,106	75,749	17,367	259,701	813,803
1946......	236,184	180,366	32,294	75,296	13,697	234,941	772,778

Table 3. - Primary slab zinc produced in the United States, by States where smelted 1/, 1945-1946, in short tons

State	1945	1946
Arkansas..............................	29,391	18,720
Idaho..................................	2/ 33,110	2/ 34,832
Illinois................................	3/ 124,904	3/ 104,002
Montana...............................	2/ 179,251	2/ 186,662
Oklahoma.............................	106,115	104,125
Pennsylvania........................	200,709	178,811
Other States 4/.....................	5/ 91,081	5/ 101,110
Total..................................	764,561	728,262

1/ Final-stage production; includes high-grade zinc refined from lower grades, but excludes lower grades consumed for this purpose.
2/ Produced by electrolytic process only.
3/ Produced by electrolytic and retort processes.
4/ Texas and West Virginia.
5/ Includes electrolytic zinc produced in Texas.

Table 4. - Consumption of slab zinc in the United States in 1945 and 1946, by industries, in short tons 1/

Industry and product	1945	1946
Galvanizing: 2/		
Sheet and strip	135,383	113,816
Wire and wire rope	46,083	43,667
Tube and pipe	63,163	62,460
Wire cloth	(3)	(3)
Fittings	10,014	10,593
Other 4/	82,538	89,223
Total	337,181	319,759
Brass products:		
Sheet, strip, and plate	146,375	66,125
Rod and wire	67,299	53,387
Tube	21,507	19,173
Castings and billets	12,942	4,776
Copper-base ingots	9,893	4,379
Other copper-base products	1,361	1,262
Total	259,377	149,102
Zinc-base alloy:		
Die castings	121,966	206,237
Alloy dies and rod	8,286	5,313
Slush and sand castings	584	661
Total	130,836	212,211
Rolled zinc	97,589	92,397
Zinc oxide	18,113	19,170
Other uses:		
Slush castings	(5)	(5)
Wet batteries	1,790	1,635
Desilverizing lead	2,095	1,781
Light-metal alloys	1,469	545
Other 6/	3,861	4,642
Total	9,215	8,603
Total: All uses	7/852,311	7/801,242

1/ Based on a canvass of 670 plants.

2/ Includes zinc used in electrogalvanizing, but excludes sherardizing.

3/ Separate figures not available but included in the total.

4/ Includes miscellaneous articles not elsewhere mentioned.

5/ Included under "Zinc-base alloy".

6/ Includes zinc used in making zinc dust, bronze powder, alloys, chemicals, castings and miscellaneous uses not elsewhere mentioned.

7/ Includes 5,111 tons of remelt zinc in 1945 and 3,912 tons in 1946.

Table 5. - Rolled zinc produced and quantity available for consumption in the United States, 1945-1946, in short tons

	1945			1946		
		Value			Value	
	Short tons	Total	Average per pound	Short tons	Total	Average per pound
Production:						
Sheet zinc not over 0.1 inch thick........	16,746	$4,624,274	$0.138	27,088	$8,581,082	$0.158
Boiler plate and sheets over 0.1 inch thick................	3,057	717,301	.117	1,615	389,904	.121
Strip and ribbon zinc 1/	77,175	18,817,191	.122	62,350	16,460,388	.132
Foil, rod, and wire....	1,406	559,213	.199	1,595	624,508	.196
Total rolled zinc.....	98,384	24,717,979	.126	92,648	26,055,882	.141
Imports................	(2)	----	---	(2)	---	---
Exports................	5,418	1,484,826	.137	11,957	3,693,009	.154
Available for consumption	3/4/92,781	----	---	3/80,633	---	---
Value of slab zinc (all grades)..........	---	----	.086	---	---	.089
Value added by rolling..	---	----	.040	---	---	.052

1/ Figures represent net production. In addition, 31,968 tons of strip and ribbon zinc in 1945 and 18,670 tons in 1946 were rerolled from scrap originating in fabricating plants in connection with zinc rolling mills.
2/ Less than 1 ton.
3/ Allowances made for change in producers' stocks of rolled zinc.
4/ Revised figure.

Table 6. - Stocks of zinc on hand at zinc-reduction plants in the United States at end of year 1945-1946, in short tons

	1945	1946
At primary reduction plants..................	254,765	175,586
At secondary distilling plants..............	1,451	756
Total................................	256,216	176,342

Table 7. - Stocks of slab zinc on hand at consumers' plants in the United States at end of year, by industries, 1945-1946, in short tons

	Galvanizers	Zinc-base alloys 1/	Brass products 2/	Zinc rolling mills	Oxide plants	Others	Total
Dec. 31, 1945...	3/33,086	3/12,791	3/18,185	6,317	3/585	3/1,417	3/4/72,381
Dec. 31, 1946...	42,678	22,271	20,041	6,548	346	1,104	4/92,988

1/ Includes producers of zinc-base die castings, zinc alloy dies, and zinc alloy rods.
2/ Includes brass mills and brass ingot makers.
3/ Revised figure.
4/ Stocks on December 31, 1945 and 1946 exclude 416 tons and 497 tons, respectively, of remelt spelter.

Table 8. - Average price received by producers for zinc, 1945-1946, by grades, in cents per pound, and value of total output

Year	Special High Grade	Regular High Grade	Intermediate	Brass Special	Selected	Prime Western	Average all grades	Value of total output
1945	8.89	8.60	8.66	8.48	8.32	8.24	8.60	$139,974,000
1946	9.18	8.81	9.08	9.00	8.89	8.60	8.88	139,795,000

Table 9. - Imports and exports of zinc, 1945-1946, in short tons 1/

	1945	1946
Imports (General 2/):		
Ore (zinc content)	381,719	272,056
Slab zinc	97,116	104,743
Imports (for consumption 3/):		
Ore (zinc content)	330,397	166,885
Slab zinc	96,710	104,015
Sheets	(4)	(4)
Old, dross, and skimmings	7,331	4,137
Zinc dust	362	77
Exports:		
Ore, and dross (zinc content)	(4)	89
Slab zinc	7,782	37,431
Sheets, strips, or other forms, n.e.s.	6,235	13,846
Zinc dust	330	366

1/ Figures on imports and exports compiled from records of the U. S. Department of Commerce.

2/ Data include material imported for immediate consumption plus material entering country under bond.

3/ Data include material for which duty has been paid in the year noted irrespective of date of importation.

4/ Less than 1 ton.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

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For release MARCH 30, 1948

MINERAL MARKET REPORTS
M. S. NO. 1589

LEAD INDUSTRY IN 1947
(Preliminary Report)

Extraordinary consumer demand which boosted the lead price to record-breaking levels and a general absence of labor and reconversion problems, such as burdened the lead industry in 1946, were together chiefly responsible for increases of 12 percent in mine output of recoverable lead, of 40 percent in smelter production of refined lead, and of 26 percent in recovery of lead from secondary sources in 1947, according to the Bureau of Mines, United States Department of the Interior. The increased supply, however, was quickly absorbed by consumers for current needs and for the backlog of civilian demand accumulated during the war. Refined lead made available for shipments to consumers totaled approximately 714,330 tons, a 50-percent gain over the comparable figure in 1946. The overall consumption of primary, antimonial, and secondary lead in 1947 is estimated at a record level of 1,150,000 short tons.

Production. - In 1947 the total mine production of recoverable lead in the United States (including that made into pigments) was 375,267 short tons, an increase of 12 percent over 1946.

Preliminary data based upon reports from producers covering eleven months' actual output plus an estimate for December indicate that 486,000 tons of refined lead and 88,800 tons of antimonial lead were produced at primary refineries in 1947, an increase of 40 percent and 76 percent, respectively over 1946. Recovery of lead from scrap at secondary smelters totaled an estimated 425,000 tons in 1947 compared with 350,924 tons in 1946.

Table 1. - Refined lead produced at primary refineries in the United States, 1946-1947, in short tons

Year	From domestic ores and base bullion	From foreign ores and base bullion	From scrap	Total
1946......................	293,309	44,888	8,013	346,210
1947 (preliminary).........	400,000	55,000	31,000	486,000

Prepared by Richard H. Mote, under the supervision of Charles White Merrill, Chief, Metal Economics Division, Economics and Statistics Branch.

Although antimonial lead output at primary lead refineries increased sharply over 1946, the antimony content dropped 1.2 percent owing to a greater demand for low percentage alloys for use in the manufacture of such items as type metal, collapsible tubes and foil, sheet and pipe, and cable covering.

Table 2. - Antimonial lead produced at primary lead refineries in the United States, in 1946 and 1947, in short tons

	Production	Antimony content		Lead content (by difference)			
		Weight	Percent	From domestic ore	From foreign ore	From scrap	Total
1946...	50,480	3,285	6.5	11,196	2,149	33,850	47,195
1947 1/	88,800	4,700	5.3	24,100	12,000	48,000	84,100

1/ Preliminary.

All existing records for recovery of lead from secondary sources were shattered in 1947. Secondary lead recovery exceeded the previous record year 1941 by 26 percent and topped the 1946 output by 28 percent. For the second successive year secondary lead production surpassed the output of recoverable lead from domestic mines. Recovery of secondary lead at primary and secondary plants in 1946 and 1947 is shown in the following table.

Table 3. - Secondary lead recovered in the United States, 1946-1947, in short tons

	1946	1947 (preliminary)
At primary plants:		
In refined lead......................	8,013	31,000
In antimonial lead.................	33,850	48,000
At secondary plants..................	350,924	425,000
Total..............................	392,787	504,000

Consumption. - In 1947 the calculated supply of refined lead made available for shipment from primary refineries to consumers (a close measure of consumption) amounted to approximately 714,330 tons, a 50-percent gain over the comparable figure of 477,686 tons in 1946. Overall consumption of primary, antimonial, and secondary lead in 1947 is estimated at 1,150,000 tons compared with 1,051,602 tons in 1946.

Table 4. - Refined lead available for shipment to consumers, 1946 and 1947, in short tons

	1946	1947 (preliminary)
Supply: Stocks at primary refineries Jan. 1...	37,691	40,963
Government-owned stocks on Jan. 1.....	68,700	45,493
Production at primary refineries......	1/ 346,210	1/ 486,000
Imports................................	112,241	159,512
Total available......................	564,842	731,968
Withdrawn:		
Stocks at primary refineries on Dec.31	40,963	14,026
Government-owned stocks on Dec. 31....	45,493	2,099
Exports................................	2/ 700	1,513
Total withdrawn......................	87,156	17,638
Apparent shipments to domestic consumers.......	477,686	714,330

1/ Includes an estimated 31,000 tons of secondary lead produced from scrap at primary refineries in 1947. The 1946 total amounted to 8,013 tons.
2/ Includes 103 tons of foreign refined lead re-exported.

Stocks. - Producers' stocks of refined lead decreased 66 percent according to data obtained in the Bureau of Mines preliminary annual survey of primary smelters and refineries. Inventories of antimonial lead (in terms of lead content) increased 11 percent. Government-owned stocks of pig lead declined from 40,963 tons on January 1 to 2,099 tons on December 31, according to information compiled by the Office of Materials Distribution, Department of Commerce.

Table 5. - Stocks of lead on hand at primary lead refineries in the United States at the end of 1946 and 1947, in short tons

Date	Refined lead	Antimonial lead 1/
December 31, 1946......................	40,963	6,673
December 31, 1947......................	14,026	7,420

1/ Lead content.

Foreign trade. - Imports of lead increased sharply in 1947, but remained well below the high levels established during wartime. As in previous years, the greater part of the lead imported was in the form of pigs and bars; 54 percent of which came from Mexico, 37 percent from Canada, 7 percent from Australia, and 2 percent from Korea, Peru, Yugoslavia, and Union of South Africa. Imports of lead in base bullion increased over twelvefold in 1947. Of the 1,590 tons imported, 1,255 tons came from Mexico, 285 tons from Korea, and 50 tons from Peru. Receipts of lead in ore, concentrate, and matte, principally from Newfoundland, Peru, Australia, Bolivia, Union of South Africa, and Canada, increased 14 percent.

Total exports of pig lead (excluding re-exports of foreign refined lead) more than doubled in 1947. Nearly 60 percent of the lead exported was consigned to Argentina.

Table 6. - Imports and exports of lead in 1946 and 1947, in short tons

Year	Imports			Exports
	Lead in ore and matte	Lead in base bullion	Pigs and bars	Pigs and bars
1946.........	44,407	125	112,241	597
1947.........	50,751	1,590	159,512	1,513

Price. - The market price for common lead, New York, was quoted at $0.1255 per pound until January 7, 1947 (the previous record high, which prevailed for a brief period in June 1917, was $0.1225, New York). On January 7 the price advanced to $0.13 per pound and a further advance to $0.14 occurred on February 25. Several days later on March 3 domestic producers again advanced the price to $0.15 per pound at which level it remained the balance of the year.

A bill extending the Premium Price Plan beyond June 30, 1947 was vetoed by the President on August 8.

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MINERAL MARKET REPORTS
M. M. S. NO. 1591

ZINC INDUSTRY IN 1947 - PRELIMINARY

Domestic zinc smelters established a peacetime-record for the production of slab zinc in 1947, according to the Bureau of Mines, United States Department of the Interior. Output from domestic and foreign ores increased 12 percent and 9 percent, respectively, over 1946, and the production of redistilled slab zinc rose 26 percent to reach the highest level since 1941. Domestic mine output of recoverable zinc also increased in 1947; Idaho continued to be the largest producing State in the United States. A 9-percent gain in imports of zinc in ores and concentrates was more than offset by a 31-percent drop in slab zinc imports. Exports of slab zinc were nearly three times greater than in 1946. Despite the increase in smelter output, the total produced plus net imports was insufficient to balance consumption with the result that producers' and consumers' stocks were sharply reduced during the year. Galvanizing continued to be the principal use of slab zinc, followed by zinc-base alloys and brass products. Prime Western grade slab zinc was quoted at 10.50 cents per pound, f.o.b. East St. Louis, throughout the year.

Government Regulations. - The zinc industry operated comparatively free of Government controls in 1947. The Priorities Regulation No. 32, limiting manufacturers' inventories of all grades of slab zinc, ended April 1, regulations requiring a license for the exportation of slab zinc and zinc semi-manufactures remained operative throughout the year.

Tariff. - The general trade conference concluded October 20 at Geneva, Switzerland bound as of January 1, 1948 the temporary tariff rates established under the Mexican Agreement of January 30, 1943. Thus the tariff on zinc-bearing ores will continue at 3/4 cent per pound (zinc content), and 7/8 cent per pound for zinc in blocks, pigs, or slabs, and dust.

Production. - Preliminary estimates of domestic mine production of recoverable zinc in 1947 indicate an output of 624,809 short tons, an increase of 9 percent over 1946. Idaho continued to rank first in mine production of zinc among the States in the United States. Oklahoma, the leading zinc-producing State since 1918 (except for 1931 and 1932 when New Jersey ranked first, and 1945 and 1946 when Idaho ranked first) slipped to fourth place in 1947, yielding second position to New Jersey and third to Arizona.

Total domestic production of slab zinc including primary metal from domestic and foreign ores and redistilled secondary from scrap (based on producers' monthly reports for twelve months) was 862,200 tons, an increase of 12 percent over 1946. The use of foreign ore increased and the slab zinc produced from this source gained 9 percent. Output from domestic ore, largest since 1944, rose 12 percent. Production of redistilled slab zinc increased 26 percent to reach the highest level since 1941.

Prepared by Richard H. Mote and Esther B. Miller, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

In addition to zinc ore required for the production of slab zinc, there are approximately 130,000 to 140,000 tons of zinc in ore consumed directly for the manufacture of zinc oxide and other zinc pigments each year without being first reduced to slab zinc. In 1946 the metal content of zinc pigments produced by domestic manufacturers from domestic and foreign ore totalled 142,193 short tons. Comparable figures for 1947 are not yet available.

Zinc-reduction plants. - There was no change in the number of active primary zinc smelters and electrolytic plants in 1947, but operations were below capacity due in part to labor-management difficulties which precipitated strikes at smelters in Monsanto, Illinois in May and at Donora, Pennsylvania and Henryetta, Oklahoma in July and August. Zinc production at Monsanto was hampered by electric power shortages in late spring and early fall of the year. The smelter at Danville, Illinois was reported permanently shutdown in November, and in December the zinc plant at Langeloth, Pennsylvania was also permanently closed.

Consumption. - Slab zinc apparently made available for shipment to domestic consumers during 1947 totalled 795,612 tons, a decrease of 7 percent from 1946. Actual consumption of slab zinc at 500 plants during 11 months of 1947 (712,736 short tons) plus an estimate for December indicates the 1947 consumption to be about 780,700 tons, which includes 2,955 tons of remelt zinc. A comparison of the calculated figure of slab zinc available to consumers and actual consumption (including an estimate for December) indicates that coverage of the monthly survey is about 98 percent.

Galvanizing continued as the principal use of slab zinc in 1947, and it is anticipated that final figures for the year will indicate a total consumption slightly greater than the 1941 record of 350,854 tons. Consumption of slab zinc for the manufacture of brass products dropped sharply owing to an abundance of brass scrap which was used by the industry in lieu of new metals. The quantity of zinc used for zinc-base alloys is expected to be slightly greater than the 212,211 tons consumed in 1946.

Stocks. - Inventories of slab zinc at producers' plants fell 61 percent in 1947 to the lowest year-end level since 1941, owing mainly to substantial quantities shipped for Government account.

Consumers' stocks on November 30 were 21,362 tons (23 percent) less than at the beginning of the year. At the average monthly rate of consumption for the first 11 months of 1947, consumers' stocks on hand on November 30 were slightly more than 1 month's requirements.

Price. - The price of slab zinc throughout 1947 was quoted at 10.50 cents a pound for Prime Western grade, f.o.b. East St. Louis.

The Allen Bill (H. R. 1602) which provided for the continuation of the Premium Price Plan for two years beyond June 30, 1947 and included provisions for subsidy payments on domestic mine production of copper, lead, zinc, and manganese at an annual cost of not more than $35,000,000, was vetoed by the President on August 8.

Foreign trade. - Total imports of zinc in ores and concentrates in 1947 increased 9 percent over 1946. Of the 296,679 tons of contained zinc so imported, 55 percent came from Mexico, 17 percent from Peru, 14 percent from Canada, 6 percent from Bolivia, 4 percent from Italy, 3 percent from Newfoundland, and over 1 percent from Spain, Australia and Union of South Africa.

Slab zinc imports dropped 31 percent in 1947. Canada continued to be the principal foreign source of slab zinc despite a decline of 35 percent in the quantity imported. Imports from Mexico, which totalled 15,777 tons in 1946, dropped to only 332 tons in 1947, but were partially offset by importation of 16,925 tons of slab zinc from Japan.

Exports of slab zinc increased nearly threefold in 1947. Over 55 percent of the 106,667 tons exported was shipped to the United Kingdom, and the remainder to approximately 20 foreign countries of which India was the only one receiving over 10,000 tons.

Table 1. - Primary and redistilled secondary slab zinc produced in the United States, 1946-1947, in short tons

Year	Primary			Redistilled secondary	Total (excludes remelted)
	Domestic	Foreign	Total		
1946.......	459,205	269,057	728,262	44,516	772,778
1947 (preliminary)	514,100	292,000	806,100	56,100	862,200

Table 2. - Distilled and electrolytic zinc, primary and secondary, produced in the United States, 1946-1947, in short tons

Year	Electrolytic primary	Distilled primary	Redistilled secondary		Total
			At primary smelters	At secondary smelters	
1946.........	281,295	446,967	18,408	26,108	772,778
1947 1/......	300,000	506,100	34,100	22,000	862,200

Classified according to grade

Year	Special high grade	Regular high grade	Intermediate	Brass Special	Selected	Prime Western	Total
1946........	236,184	180,366	32,294	75,296	13,697	234,941	772,778
1947 1/.....	239,300	190,400	30,000	76,000	17,000	309,500	862,200

1/ Preliminary figures.

Table 3. - Stocks of zinc on hand at primary and secondary zinc-reduction plants in the United States at the end of 1946 and 1947, in short tons

Date	At primary plants	At secondary plants	Total 1/
December 31, 1946...	175,586	756	176,342
December 31, 1947 1/	67,700	600	68,300

1/ Includes Metals Reserve Company stocks at producers' plants.

Table 4. - Consumers' stocks of slab zinc at plants at the beginning of 1947 and November 30, by industries and grades, in short tons

Industries	Galvanizing	Zn-base alloy	Brass products	Rolled zinc	Zinc oxide	Others	Total
Jan. 1..........	42,678	22,271	20,041	6,548	346	1,104	1/ 92,988
Nov. 30..........	35,836	11,803	15,476	6,366	1,126	1,019	1/ 71,626

Grades	Special high grade	Regular high grade	Intermediate	Brass special	Select	Prime western	Total
Jan. 1.......	27,905	16,920	4,267	5,407	305	38,184	1/92,988
Nov. 30......	19,044	11,599	2,289	5,855	242	32,597	1/71,626

1/ Stocks on January 1 and November 30 exclude 497 tons and 303 tons, respectively, of remelt spelter.

Table 5. - Imports and exports of zinc in 1946 and 1947, in short tons 1/

	Imports		Exports
	Zinc in ore	Slab zinc	Slab zinc
1946......................	272,056	104,743	37,431
1947......................	296,679	72,326	106,667

1/ From records of the Bureau of Census, U. S. Department of Commerce.

Table 6. - Slab zinc available for shipment to consumers, in 1946-1947, in short tons

	1946	1947 (preliminary)
Supply:		
Stocks at primary smelters Jan. 1.	254,765	175,586
Stocks at secondary plants Jan. 1.	1,451	756
Production - primary..............	728,262	806,100
secondary...........	44,516	56,100
Imports of slab zinc.............	104,743	72,300
Total available................	1,133,737	1,110,842
Withdrawn:		
Exports of slab zinc.............	37,431	106,700
Shipments to Government account...	62,007	140,230
Stocks at primary smelters Dec. 31	175,586	67,700
Stocks at secondary plants Dec. 31	756	600
Total withdrawn................	275,780	315,230
Available to consumers....................	857,957	795,612

Table 7. - Consumption of slab zinc in the United States in 1946, and Jan.-Nov., inclusive, 1947, by industries, in short tons

	Galvanizing	Brass products	Zn-base alloy	Rolled zinc	Zinc oxide	Other	Total
1946.............	319,759	149,102	212,211	92,397	19,170	8,603	1/ 801,242
1947:							
January..........	31,340	16,312	23,207	8,450	2,460		81,769
February.........	25,293	13,125	19,806	7,732	1,817		67,773
March............	30,099	12,343	20,571	8,274	1,998		73,285
April............	30,202	11,159	19,584	6,881	2,022		69,848
May..............	30,303	9,451	16,493	5,501	2,187		63,935
June.............	28,357	7,865	16,393	4,210	2,181		59,006
July.............	27,943	4,933	14,012	3,489	2,286		52,663
August...........	30,585	5,634	12,866	4,800	2,303		56,188
September........	30,568	6,306	15,075	4,636	1,718		58,303
October..........	33,880	7,855	19,991	6,100	2,262		70,088
November.........	29,138	6,002	17,422	4,982	2,334		59,878
11-months' total	327,708	100,985	195,420	65,055	23,568		2/ 712,736
December estimate							68,000
							2/ 780,736

1/ Includes 3,912 tons of remelt zinc.
2/ Includes 2,955 tons of remelt zinc.

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MINES

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MINERAL MARKET REPORT
M. M. S. No. 1592

TION

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on, Coal Economics Branch,
on, Bureau of Mines.

The following tables, covering the calendar year 1946, have been compiled from reports rendered by producers of bituminous coal and lignite for each mine producing an average of 50 tons or more per day, or mines having direct rail or river shipping facilities regardless of tonnage produced, dock operators, and transshippers of coal moving via the Great Lakes and tidewater, pursuant to Solid Fuels Administration for War Order No. 3 and Amendments Nos. 1, 2, and 3 thereto. Under that order, producers filed monthly reports on Form S.F.A. No. 38 for bituminous coal and Form S.F.A. No. 56 (North Dakota, South Dakota, and Texas) for lignite, showing production and distribution of coal from each mine producing an average of 50 tons per day or more, or having direct rail or river shipping facilities, regardless of tonnage produced, identified by States and market areas of destination, uses, sizes, and methods of movement. Dock operators filed similar distribution information monthly on Form S.F.A. No. 48 with respect to coal shipped from the docks. All persons ordering or directing the transshipment of coal at Lake or tidewater dumping piers filed cargo manifests, invoices, summary reports, or other documents covering the movement of coal from the port of dumping to the port of receipt.

The data submitted in these tables have been abstracted from mechanical tabulations of the reports that have been rendered by the parties described and include such tonnages as were reported at the time the tabulations were closed. They have a coverage representing 90.9 percent of the total production. Production and distribution data not accounted for in the tables originated at mines with an average of less than 50 tons daily production, which have no direct rail or river shipping facilities, and from which reports are not required, together with tonnages from certain large mines and docks delinquent in filing.

It will be noted that certain tonnages described as "unknown" and "not reported" appear throughout the tables. These items represent the accumulation of tonnages for which respondents failed to report pertinent information such as district of origin, State of destination, size group, and use; replies to correspondence requesting such information had not been received at the time the tabulations were prepared.

Tonnages are shown in net tons of 2,000 pounds.

TABLE 1. - DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 AS REPORTED ON FORMS S.F.A. NOS. 38, 48, AND 56, AND CARGO MANIFESTS, INVOICES AND SUMMARY REPORTS

In this table are shown (a) the total production for each producing district as reported on Forms S.F.A. Nos. 38 and 56, and (b) the total shipments to consumers, distributed by States of destination and uses. Destinations are not shown for railroad fuel. Only for byproduct and beehive coke oven and smithing use are destinations reported for truck shipments. The truck tonnages for which destinations were reported are included in the all-rail, river and ex-river data for statistical convenience.

Shipments from each producing district to State of destination and for each use therein are shown for coal moving all-rail, river, and ex-river for all uses except railroad fuel and in the case of coal for coking purposes and for smithing use, for all movements except Lake and tidewater. Following a subtotal of these tonnages, there are shown by producing districts the tonnages of railroad fuel shipments, tidewater and Lake shipments, shipments by truck, shipments to such distributors and wholesalers who failed to furnish information as to the final destination and use, shipments by private railroads, tramways and conveyors, tonnages of coal used in and around the mines (including coal used to produce coal, coal used by mine employees, and coal made into briquets or packaged fuel), other disposals by methods not specifically outlined, net change in mine inventories, and the total production reported.

Item 13 has the estimated residual part of truck production, the product of mines which were not required to report on Forms S.F.A. Nos. 38 and 56, for the calendar year 1946. These estimates are based on the total production of truck mines during 1946. They represent approximate activity of this class of mine during the calendar year 1946. The estimates represent total truck tonnages for 1946 less (a) tonnages included in rail, river, and ex-river movement for shipments by truck to byproduct and beehive coke ovens away from the producing mine and for smithing use, and (b) truck tonnage shown in Item 7.

In order to show the total coal distribution by States of destination by all movements, and by consumer uses, there has been included in this table a summary by States of destinations and uses of waterborne coal moving to consumers via the Great Lakes and tidewater. These data exclude shipments to storage docks that have not been reported as being transshipped to a consumer. As explained in the footnote to this section of the table, the tonnages shown represent the distribution of coal to consumers during the period reported that moved from the mines by Lakes and tidewater. In the final column are shown the tonnages of total shipments by all movements and for all uses. In comparing the grand total distribution arrived at in the last column with the grand total of the distribution and production from the mines, it is pointed out that the total distribution of total production reported on Forms S.F.A. Nos. 38 and 56 covers shipments to Lake and tidewater as reported by producers and includes coal in transit to and at the dumping piers, that delivered to storage docks, and coal moving inland to storage piles, while the grand total distribution includes shipments made to consumers during the period. During this calendar year producers reported shipping to the Great Lakes 46,950,410 tons, while dock operators and transshippers moved to consumers total shipments of 50,907,768 tons. To tidewater, producers reported shipments of 40,925,545 and dock operators and transshippers reported moving to consumers 48,720,983. A summarization of waterborne shipments via Lake and tidewater during this year shows there were moved to consumers 11,752,796 tons more than were moved to the dumping piers by producers, hence the difference in totals.

Certain transshippers were delinquent in filing data required, particularly with respect to movements of coal for account of Canadian distributors who themselves arrange for transshipment. The total reported shipments of bituminous coal to Canada during the calendar year 1946 including railroad fuel, was 20,067,032 tons and accounts for 91.7 percent of the grand total shipments to Canada. Reported shipments of railroad fuel to Canada are included in Item 4, "Railroad Fuel."

Detail breakdowns of the Lake and tidewater shipments are shown in Tables 2 and 3.

TABLE 2. - SHIPMENTS OF BITUMINOUS COAL VIA TIDEWATER TO ALONGSIDE CONSUMERS AND EX-DOCK SHIPMENTS FROM COMMERCIAL DOCKS AS REPORTED ON CARGO MANIFESTS, INVOICES, SUMMARY REPORTS AND FORM S.F.A. NO. 48 DURING THE CALENDAR YEAR 1946, BY DISTRICT OF ORIGIN, STATE OF DESTINATION AND USE.

This table provides the distribution of tidewater interport shipments to alongside consumers, by district of origin, State of destination, and use within the State. There are also shown the tonnages of coal moving off the commercial tidewater docks, by State of destination and by use. It is not possible, as a rule, to secure the district of origin on these ex-dock coals, and, therefore, they are shown only in total. The data represent the distribution of coal that moved from the mines via tidewater during the calendar year 1946 to the State of consumption by uses.

Following the detailed State analyses are the tonnages that moved for railroad fuel, bunker fuel, and export overseas, by district of origin, for alongside purchasers and total shipments ex-dock.

TABLE 3. - SHIPMENTS OF BITUMINOUS COAL VIA THE GREAT LAKES TO ALONGSIDE CONSUMERS AND EX-DOCK SHIPMENTS FROM COMMERCIAL DOCKS AS REPORTED ON CARGO MANIFESTS, INVOICES, SUMMARY REPORTS AND FORM S.F.A. NO. 48 DURING THE CALENDAR YEAR 1946, BY DISTRICT OF ORIGIN, STATE OF DESTINATION AND USE.

Here is listed the distribution of Great Lakes interport shipments to alongside consumers, by district of origin, State of destination, and use. There are also shown the tonnages of coal moving off the Upper Lakes commercial docks, by State of destination and use. As in the case of shipments from the tidewater docks, it is not possible, as a rule, to secure the district of origin on the ex-dock coals, and, therefore, they are shown in total only. The data represent the distribution of coal that moved from the mines via the Great Lakes during the calendar year 1946 to the State of consumption by uses.

Following the detailed State analyses and the United States total are the tonnages that moved to Canada. The total reported interport movement for storage or consignment is shown for the reason that Canadian dock operators were not required and did not file reports of ex-dock shipments from commercial docks.

To complete the analysis of the total reported shipments, railroad and Lake vessel fuels are shown.

TABLE 4. - SHIPMENTS OF BITUMINOUS COAL AND LIGNITE DURING THE CALENDAR YEAR 1946, BY DISTRICT OF ORIGIN, USE, CONSOLIDATED SIZE GROUP, AND METHOD OF MOVEMENT, AS REPORTED ON FORMS S.F.A. NOS. 38, 48, AND 56, AND CARGO MANIFESTS, INVOICES, AND SUMMARY REPORTS.

For each producing district, there are indicated the total reported shipments and transshipments, by consolidated size groups, methods of movement, and consumer uses. Due to the fact that the district of origin of shipments off the docks on the Upper Lakes and Seaboard are not ascertainable, these tonnages are shown in total only for the Great Lakes and tidewater groups.

The five basic size groups for all movements and uses except the Great Lakes and tidewater ex-dock shipments are identical to those described below as being applicable in Table 6. In the case of Lake and tidewater ex-dock shipments, block, lump, egg, and stove sizes are included in Group 1; nut, pea, and stoker (including all coal shipped from the mine as stoker as well as dock-made stoker sizes) in Group 2; run of pile (including all coal except screenings and stoker which are loaded without rescreening) in Group 3; and screenings (including all resultants from screenings on the docks as well as screenings shipped as such from the mines) in Group 4. With no break reported as to sizes of screenings shipped ex-dock, the total tonnage of all screenings is reported in Group 4.

Consumer uses (other than byproduct and beehive coke oven coal trucked away from the producing mine, and smithing) are not reported for truck shipments or other disposals not specified, and, therefore, are shown only in total for the district. Coal used at the mines and the net changes in inventories are also shown in total in order to complete the analysis of the total tonnage reported by district of origin.

TABLE 5. - RECAPITULATION OF THE DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946, AS REPORTED ON FORMS S.F.A. NOS. 38 AND 56, BY DISTRICT OF ORIGIN, METHOD OF MOVEMENT, AND/OR USE.

This table includes the summaries of the tonnages for each producing district by methods of movements and by uses as reported by the producers. The ratio of the coverage of the total for each district as compared with the grand total production for the calendar year 1946 as reported in Mineral Market Report M.M.S. No. 1558 of December 22, 1947 is also shown at the foot of the table.

TABLE 6. - PRODUCTION OF BITUMINOUS COAL AND LIGNITE BY CONSOLIDATED SIZE GROUPS DURING THE CALENDAR YEAR 1946 AS REPORTED ON FORMS S.F.A. NOS. 38 AND 56.

This table shows for each producing district the total tonnages broken down by five basic size groupings as described in the captions of Columns 1 through 5 of the table, by truck movement, for railroad fuel and all other movements and uses as reported on Form S.F.A. Nos. 38 and 56. These basic groups of sizes with the exception of sizes 1 and 2 in District 3 follow the general descriptions of the size groups for District No. 1 as set forth in the minimum and maximum price schedules for that district. In District 3 size group 1 includes "lump coal and double screened coal with a bottom size larger than 2". Size group 2 includes "lump and double screened coal with a bottom size 2" and smaller." In the case of basic group 3, domestic mine run, and screened and altered mine run, were included as these descriptions are used in other districts. These added groups of coal, however, do not include any sizes outside the descriptions for Size Group 3 in District No. 1. In basic groups 4 and 5, the only changes made from District 1 descriptions were the inclusion in each group of dedusted screenings which appear in the size group descriptions of certain districts.

In consolidating the size groups for all districts under the five basic groups described in the table, it was found that in some districts the maximum top and bottom size of certain size groups overlapped. In some instances, where the preponderant sizes of the size groups which overlapped were known, it was possible to determine the basic group within which most of the tonnage would fall. In certain instances of overlapping size groups where there was more than one such size which overlapped, the size group was included in the basic group on the basis of the maximum top size.

The sizes shown are those as reported on Forms S.F.A. Nos. 38 and 56 and are the sizes as shipped from the mines.

* * * * *

This publication was prepared by F. C. Scalf working under the direction of Joseph J. Gallagher. The editing of reports filed by producers, transshippers and dock operators and the preparation of basic statistical data were directed by Walter T. Kuzara and Florace C. Scalf under the direct supervision of Mark D. Miller. The analysis for the Bureau was made under the general supervision of T. W. Hunter, Chief, Coal Economics Branch.

DISTRIBUTION OF BITUMINOUS COAL AND LI
FORMS S.F.A. NOS. 38, 48 AND 56
(In Ne

TABLE I

REGION, STATE, AND USE	1	2	3	4	5
1. All-Rail, River and Ex-river 1/ (Excluding Railroad Fuel)					
New England					
Connecticut Total	413,174	39,124	217,515	-	-
Industrial	316,723	14,630	143,033	-	-
Retail Yards	93,648	7,109	62,388	-	-
Byproduct and Water Gas	-	17,385	-	-	-
Smithing	2,803	-	-	-	-
Use not Reported	-	-	12,094	-	-
Maine Total	31,734	7,632	53,176	-	-
Industrial	12,157	677	32,218	-	-
Retail Yards	18,945	5,607	20,958	-	-
Byproduct and Water Gas	-	1,348	-	-	-
Smithing	632	-	-	-	-
Use not Reported	-	-	-	-	-
Massachusetts Total	1,321,417	81,014	377,970	-	-
Industrial	1,060,201	51,961	238,391	-	-
Retail Yards	258,290	24,137	122,128	-	-
Byproduct and Water Gas	-	4,916	1,209	-	-
Smithing	2,926	-	-	-	-
Use not Reported	-	-	16,242	-	-
New Hampshire Total	197,543	21,360	68,500	-	-
Industrial	144,209	18,584	34,625	-	-
Retail Yards	53,138	2,347	33,875	-	-
Byproduct and Water Gas	-	429	-	-	-
Smithing	196	-	-	-	-
Use not Reported	-	-	-	-	-
Rhode Island Total	34,941	2,501	19,324	-	-
Industrial	31,430	2,425	1,220	-	-
Retail Yards	3,511	76	15,878	-	-
Byproduct and Water Gas	-	-	-	-	-
Use not Reported	-	-	2,226	-	-
Vermont Total	144,464	12,585	87,252	-	-
Industrial	111,840	9,059	65,941	-	-
Retail Yards	32,087	524	21,311	-	-
Byproduct and Water Gas	-	3,002	-	-	-
Smithing	537	-	-	-	-

TE PRODUCED DURING THE CALENDAR YEAR 1946 AS REPORTED ON
CARGO MANIFESTS, INVOICES AND SUMMARY REPORTS
ons of 2,000 Pounds)

DISTRICT OF ORIGIN

	7	8	9	10	11	12	13	14	15
-	38,195	40,174	-	-	-	-	-	-	-
-	19,703	21,420	-	-	-	-	-	-	-
-	14,937	13,137	-	-	-	-	-	-	-
-	3,555	5,069	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	548	-	-	-	-	-	-	-
-	75,238	35,545	-	-	-	-	-	-	-
-	49,011	22,065	-	-	-	-	-	-	-
-	26,227	12,536	-	-	-	-	-	-	-
-	-	693	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	251	-	-	-	-	-	-	-
240	295,276	267,888	-	-	-	-	-	-	-
-	55,836	109,495	-	-	-	-	-	-	-
240	202,165	58,883	-	-	-	-	-	-	-
-	36,151	98,213	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	1,124	1,297	-	-	-	-	-	-	-
102	28,481	13,962	-	-	-	-	-	-	-
102	13,896	9,169	-	-	-	-	-	-	-
-	14,585	2,340	-	-	-	-	-	-	-
-	-	48	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	2,405	-	-	-	-	-	-	-
-	29,484	20,371	-	-	-	-	-	-	-
-	9,962	6,236	-	-	-	-	-	-	-
-	7,021	9,677	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	12,501	4,458	-	-	-	-	-	-	-
1,041	3,774	23,933	-	-	-	-	-	-	-
1,041	172	21,622	-	-	-	-	-	-	-
-	3,602	2,311	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DUR
FORMS S.F.A. NOS. 38, 48 AND 56 AND CARGO MANIFEST
(In Net Tons of 2,000 Po

TABLE I

REGION, STATE, AND USE	DISTRICT OF ORIGIN						
	16	17	18	19	20	21	22
1. All-Rail, River and Ex-River 1/ (Excluding Railroad Fuel)							
New England							
Connecticut Total	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Smithing	-	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-	-
Maine Total	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Smithing	-	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-	-
Massachusetts Total	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Smithing	-	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-	-
New Hampshire Total	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Smithing	-	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-	-
Rhode Island Total	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-	-
Vermont Total	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Smithing	-	-	-	-	-	-	-

THE CALENDAR YEAR 1946 AS REPORTED ON
INVOICES AND SUMMARY REPORTS
s)

23	Distribution of Total Production Reported on Forms S.F.A.Nos.38 and 56	Waterborne Shipments via Lake and Tidewater 2/ Great Lakes	Tidewater	Total	Grand Total Distribution
-	748,182	-	2,651,704	2,651,704	3,399,886
-	515,509	-	1,737,967	1,737,967	2,253,476
-	191,219	-	395,734	395,734	586,953
-	26,009	-	518,003	518,003	544,012
-	2,803	-	-	-	2,803
-	12,642	-	-	-	12,642
-	203,325	-	1,101,189	1,101,189	1,304,514
-	116,128	-	793,620	793,620	909,748
-	84,273	-	307,375	307,375	391,648
-	2,041	-	106	106	2,147
-	632	-	88	88	720
-	251	-	-	-	251
-	2,343,805	-	6,250,819	6,250,819	8,594,624
-	1,515,884	-	2,926,714	2,926,714	4,442,598
-	665,843	-	1,677,350	1,677,350	2,343,193
-	140,489	-	1,646,755	1,646,755	1,787,244
-	2,926	-	-	-	2,926
-	18,663	-	-	-	18,663
-	329,948	-	393,360	393,360	723,308
-	220,585	-	269,496	269,496	490,081
-	106,285	-	122,071	122,071	228,356
-	477	-	1,793	1,793	2,270
-	196	-	-	-	196
-	2,405	-	-	-	2,405
-	106,621	-	1,169,967	1,169,967	1,276,588
-	51,273	-	342,960	342,960	394,233
-	36,163	-	545,450	545,450	581,613
-	-	-	281,557	281,557	281,557
-	19,185	-	-	-	19,185
-	273,049	-	32,051	32,051	305,100
-	209,675	-	31,840	31,840	241,515
-	59,835	-	211	211	60,046
-	3,002	-	-	-	3,002
-	537	-	-	-	537

TABLE 1

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (continue

REGION, STATE, AND USE						D
	1	2	3	4	5	6
Middle Atlantic						
New Jersey Total	2,308,097	314,091	1,303,642	-	-	8,16
Industrial	2,118,655	277,250	1,093,985	-	-	2,54
Retail Yards	187,531	29,031	175,951	-	-	5,62
Byproduct and Water Gas	-	7,810	33,706	-	-	-
Smithing	1,911	-	-	-	-	-
Use not Reported	-	-	-	-	-	-
New York Total	6,275,603	4,490,141	2,831,051	183,620	-	172,62
Industrial	4,945,104	1,726,924	2,060,220	127,422	-	150,58
Retail Yards	591,385	251,469	394,957	56,198	-	22,04
Byproduct and Water Gas	734,960	2,511,748	375,874	-	-	-
Smithing	4,154	-	-	-	-	-
Pennsylvania Total	7,050,551	27,008,299	4,772,795	145,339	-	125,34
Industrial	4,318,549	6,516,250	2,585,973	92,274	-	91,89
Retail Yards	394,193	1,299,440	268,566	53,065	-	33,44
Byproduct and Water Gas 3/	2,331,634	19,191,565	1,918,049	-	-	-
Smithing	6,175	1,044	207	-	-	-
East North Central						
Illinois Total	33,578	10,801	56,362	12,810	-	-
Industrial	7,974	1,513	30,793	6,654	-	-
Retail Yards	20,912	53	25,569	6,156	-	-
Byproduct and Water Gas	-	9,235	-	-	-	-
Smithing	4,692	-	-	-	-	-
Storage	-	-	-	-	-	-
Indiana Total	11,406	83,319	66,920	147,426	-	-
Industrial	8,820	5,796	33,257	96,844	-	-
Retail Yards	472	-	33,663	50,582	-	-
Byproduct and Water Gas	-	77,523	-	-	-	-
Smithing	2,114	-	-	-	-	-
Michigan Total	65,837	392,157	250,552	1,311,547	29,540	16
Industrial	58,143	307,775	118,499	846,378	15,777	9
Retail Yards	6,663	11,778	132,053	448,109	13,763	7
Byproduct and Water Gas	-	72,604	-	17,060	-	-
Smithing	1,031	-	-	-	-	-
Ohio Total	288,952	6,372,352	2,737,807	9,465,613	-	616,54
Industrial	80,039	1,502,074	1,984,195	7,844,749	-	571,94
Retail Yards	5,425	362,058	671,382	1,620,864	-	44,59
Byproduct and Water Gas	199,948	4,507,737	82,230	-	-	-
Smithing	3,540	195	-	-	-	-
Storage	-	288	-	-	-	-

TRICT OF ORIGIN								
7	8	9	10	11	12	13	14	15
125,536	157,185	-	-	-	-	-	-	-
62,255	51,333	-	-	-	-	-	-	-
62,949	4,853	-	-	-	-	-	-	-
332	96,766	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	4,233	-	-	-	-	-	-	-
91,540	29,209	-	121	-	-	-	-	-
49,218	15,029	-	121	-	-	-	-	-
41,043	4,388	-	-	-	-	-	-	-
1,108	9,792	-	-	-	-	-	-	-
171	-	-	-	-	-	-	-	-
309,553	431,544	-	161	-	-	-	-	-
20,941	151,609	-	161	-	-	-	-	-
74,090	52,621	-	-	-	-	-	-	-
214,217	226,434	-	-	-	-	-	-	-
305	880	-	-	-	-	-	-	-
4,424,835	3,302,843	1,394,126	22,824,631	3,330,446	-	42	6,093	908
73,528	186,779	642,664	15,730,526	2,140,615	-	-	910	706
3,382,474	1,737,981	750,950	6,899,033	1,147,865	-	-	4,866	202
965,457	1,377,581	-	195,072	41,966	-	-	317	-
3,376	-	-	-	-	-	42	-	-
-	502	512	-	-	-	-	-	-
2,966,174	6,958,068	414,594	1,989,664	6,855,841	-	-	-	-
37,978	1,171,743	266,720	1,640,319	5,529,850	-	-	-	-
845,594	3,405,097	147,874	175,239	1,325,991	-	-	-	-
2,081,451	2,381,228	-	174,106	-	-	-	-	-
1,151	-	-	-	-	-	-	-	-
3,231,490	8,685,076	71,211	361,033	101,930	-	-	-	-
127,470	5,188,982	18,963	131,100	58,585	-	-	-	-
2,950,691	3,331,954	52,248	229,933	43,345	-	-	-	-
152,433	164,140	-	-	-	-	-	-	-
896	-	-	-	-	-	-	-	-
5,468,214	14,558,803	22,962	316	30,832	-	-	-	-
226,819	6,033,045	11,950	-	27,858	-	-	-	-
2,426,195	5,233,228	11,012	316	2,974	-	-	-	-
2,812,226	3,292,413	-	-	-	-	-	-	-
2,974	117	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (continued

REGION, STATE, AND USE	DISTRICT OF ORIGIN					
	16	17	18	19	20	21
Middle Atlantic						
New Jersey Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-
New York Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Pennsylvania Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
East North Central						
Illinois Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Storage	-	-	-	-	-	-
Indiana Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Michigan Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Ohio Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Storage	-	-	-	-	-	-

22	23	Distribution of Total Production Reported on Forms S.F.A.Nos. 38 and 56	Waterborne Shipments via Lake and Tidewater 2/			Grand Total Distribution
			Great Lakes	Tidewater	Total	
-	-	4,216,720	-	4,348,858	4,348,858	8,565,578
-	-	3,606,025	-	2,830,539	2,830,539	6,436,564
-	-	465,937	-	650	650	466,587
-	-	138,614	-	1,517,669	1,517,669	1,656,283
-	-	1,911	-	-	-	1,911
-	-	4,233	-	-	-	4,233
-	-	14,073,914	2,638,752	9,604,337	12,243,089	26,317,003
-	-	9,074,627	1,041,045	7,078,460	8,119,505	17,194,132
-	-	1,361,480	31,264	1,074,609	1,105,873	2,467,353
-	-	3,633,482	1,566,443	1,451,268	3,017,711	6,651,193
-	-	4,325	-	-	-	4,325
-	-	39,843,583	134,241	2,306,231	2,440,472	42,284,055
-	-	13,777,649	-	1,691,712	1,691,712	15,469,361
-	-	2,175,424	-	53	53	2,175,477
-	-	23,881,899	134,241	614,466	748,707	24,630,606
-	-	8,611	-	-	-	8,611
-	-	35,397,475	1,631,615	-	1,631,615	37,029,090
-	-	18,822,662	59,617	-	59,617	18,882,279
-	-	13,976,061	91,103	-	91,103	14,067,164
-	-	2,589,628	1,480,841	-	1,480,841	4,070,469
-	-	8,110	54	-	54	8,164
-	-	1,014	-	-	-	1,014
-	-	19,493,412	3,864,500	-	3,864,500	23,357,912
-	-	8,791,327	2,080	-	2,080	8,793,407
-	-	5,984,512	-	-	-	5,984,512
-	-	4,714,308	3,862,373	-	3,862,373	8,576,681
-	-	3,265	47	-	47	3,312
-	-	14,500,537	10,707,750	-	10,707,750	25,208,287
-	-	6,871,764	6,834,023	-	6,834,023	13,705,787
-	-	7,220,609	1,239,287	-	1,239,287	8,459,896
-	-	406,237	2,634,210	-	2,634,210	3,040,447
-	-	1,927	230	-	230	2,157
-	-	39,562,395	312,008	-	312,008	39,874,403
-	-	18,282,677	48	-	48	18,282,725
-	-	10,378,050	811	-	811	10,378,861
-	-	10,894,554	311,149	-	311,149	11,205,703
-	-	6,826	-	-	-	6,826
-	-	288	-	-	-	288

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (contin

REGION, STATE, AND USE	1	2	3	4	5	6
Wisconsin Total	2,011	1,701	16,971	7,200	-	-
Industrial	115	1,701	9,250	4,797	-	-
Retail Yards	-	-	7,721	2,403	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	1,896	-	-	-	-	-
West North Central						
Iowa Total	2,103	-	12,123	1,695	-	-
Industrial	-	-	491	-	-	-
Retail Yards	-	-	11,632	1,695	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	2,103	-	-	-	-	-
Kansas Total	1,431	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	1,431	-	-	-	-	-
Minnesota Total	4,799	-	1,545	738	-	-
Industrial	-	-	43	-	-	-
Retail Yards	-	-	1,502	738	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	4,799	-	-	-	-	-
Missouri Total	12,639	-	1,180	-	-	-
Industrial	3,501	-	1,180	-	-	-
Retail Yards	2,464	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	6,674	-	-	-	-	-
Nebraska Total	1,666	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	1,666	-	-	-	-	-
North Dakota Total	839	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	839	-	-	-	-	-
South Dakota Total	963	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	963	-	-	-	-	-

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STRICT OF ORIGIN								
7	8	9	10	11	12	13	14	15
585,591	190,700	372,700	1,848,623	728,665	–	–	191	–
5,022	10,194	303,268	1,300,529	630,110	–	–	–	–
580,305	175,465	69,432	548,094	65,931	–	–	191	–
–	5,041	–	–	32,624	–	–	–	–
264	–	–	–	–	–	–	–	–
54,323	672,350	312,378	3,982,638	620,881	601,073	–	80,837	336,878
–	1,140	77,974	1,867,577	341,398	509,892	–	3,130	97,290
51,629	629,769	234,404	2,115,061	279,483	91,181	–	77,707	239,588
2,164	41,441	–	–	–	–	–	–	–
530	–	–	–	–	–	–	–	–
46	48	259	39,190	103	–	91	107,488	1,057,998
–	48	259	567	103	–	–	9,246	595,296
–	–	–	38,623	–	–	–	98,242	462,702
46	–	–	–	–	–	91	–	–
78,282	45,434	115,227	1,181,410	118,399	43	–	58,404	9,623
265	7,366	73,016	854,462	97,842	–	–	17,997	6,427
77,932	38,068	42,211	326,948	20,557	43	–	40,407	3,196
–	–	–	–	–	–	–	–	–
85	–	–	–	–	–	–	–	–
345,390	310,847	79,054	3,328,213	4,843	4,199	2,709	396,199	1,981,138
2,124	20,868	67,843	1,504,119	2,058	–	608	16,741	1,065,161
228,688	93,436	11,211	1,810,555	2,785	4,199	1,516	379,458	915,977
114,477	196,543	–	13,539	–	–	–	–	–
101	–	–	–	–	–	585	–	–
511	2,679	14,982	124,858	1,543	–	–	166,929	675,011
–	–	3,796	11,223	–	–	–	1,237	362,694
511	2,679	11,186	113,635	1,543	–	–	165,692	312,317
–	–	–	–	–	–	–	–	–
–	–	684	563	–	–	–	–	–
–	–	270	77	–	–	–	–	–
–	–	414	486	–	–	–	–	–
–	–	–	–	–	–	–	–	–
5,710	1,898	16,047	94,553	2,143	–	–	24,321	15,158
–	100	10,124	55,817	1,935	–	–	–	7,945
5,710	1,101	5,923	38,736	208	–	–	24,321	7,213
–	697	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (conti

REGION, STATE, AND USE	DISTRICT OF ORIGIN					
	16	17	18	19	20	21
Wisconsin Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
West North Central						
Iowa Total	43	24,904	-	23,707	4,421	-
Industrial	-	-	-	52	42	-
Retail Yards	43	24,904	-	23,655	4,379	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Kansas Total	499	142,744	-	9,891	6,695	-
Industrial	-	459	-	1,555	440	-
Retail Yards	499	142,285	-	8,336	6,255	-
Smithing	-	-	-	-	-	-
Minnesota Total	-	543	-	8,547	-	145,780
Industrial	-	-	-	5,157	-	89,024
Retail Yards	-	543	-	3,390	-	56,756
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Missouri Total	-	135	-	2,457	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	135	-	2,457	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Nebraska Total	1,611	395,224	-	246,637	32,812	-
Industrial	89	15,735	-	133,667	2,573	-
Retail Yards	1,522	379,489	-	112,970	30,239	-
Smithing	-	-	-	-	-	-
North Dakota Total	-	75	-	59,698	41	1,745,276
Industrial	-	-	-	15,253	-	842,574
Retail Yards	-	75	-	44,445	41	902,702
Smithing	-	-	-	-	-	-
South Dakota Total	36	48,302	-	175,313	13,795	148,359
Industrial	-	1,879	-	139,096	1,245	121,012
Retail Yards	36	46,423	-	36,217	12,550	27,347
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-

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		Distribution of Total Production Reported on Forms S.F.A.Nos.38 and 56	Waterborne Shipments via Lake and Tidewater 2/			Grand Total Distribution
22	23		Great Lakes	Tidewater	Total	
531	-	3,754,884	8,675,919	-	8,675,919	12,430,803
531	-	2,265,517	3,326,769	-	3,326,769	5,592,286
-	-	1,449,542	3,492,164	-	3,492,164	4,941,706
-	-	37,665	1,856,428	-	1,856,428	1,894,093
-	-	2,160	558	-	558	2,718
438	-	6,730,792	118,151	-	118,151	6,848,943
-	-	2,898,986	984	-	984	2,899,970
438	-	3,785,568	117,161	-	117,161	3,902,729
-	-	43,605	-	-	-	43,605
-	-	2,633	6	-	6	2,639
-	-	1,366,483	-	-	-	1,366,483
-	-	607,973	-	-	-	607,973
-	-	756,942	-	-	-	756,942
-	-	1,568	-	-	-	1,568
9,755	-	1,778,529	3,913,170	-	3,913,170	5,691,699
-	-	1,151,599	1,366,683	-	1,366,683	2,518,282
9,755	-	622,046	2,076,185	-	2,076,185	2,698,231
-	-	-	468,782	-	468,782	468,782
-	-	4,884	1,520	-	1,520	6,404
-	-	6,469,003	-	-	-	6,469,003
-	-	2,684,203	-	-	-	2,684,203
-	-	3,452,881	-	-	-	3,452,881
-	-	324,559	-	-	-	324,559
-	-	7,360	-	-	-	7,360
-	-	1,664,463	7,569	-	7,569	1,672,032
-	-	531,014	20	-	20	531,034
-	-	1,131,783	7,549	-	7,549	1,139,332
-	-	1,666	-	-	-	1,666
31,673	-	1,838,849	211,896	-	211,896	2,050,745
846	-	859,020	30,880	-	30,880	889,900
30,827	-	978,990	180,907	-	180,907	1,159,897
-	-	839	109	-	109	948
68,441	-	615,039	352,403	-	352,403	967,442
27,611	-	366,764	16,358	-	16,358	383,122
40,830	-	246,615	335,930	-	335,930	582,545
-	-	697	41	-	41	738
-	-	963	74	-	74	1,037

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (contin

REGION, STATE, AND USE	1	2	3	4	5	6
South Atlantic						
Delaware Total	189,046	33,612	95,421	-	-	-
Industrial	169,590	31,539	79,989	-	-	-
Retail Yards	19,456	924	15,432	-	-	-
Byproduct and Water Gas	-	1,149	-	-	-	-
District of Columbia Total	271,087	3,569	60,283	-	-	4
Industrial	262,501	3,055	42,457	-	-	4
Retail Yards	8,586	514	17,826	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Florida Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Georgia Total	-	-	418	-	-	-
Industrial	-	-	418	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Maryland Total	1,205,850	143,356	2,251,317	-	-	19,50
Industrial	1,027,973	65,061	797,091	-	-	7,08
Retail Yards	177,034	14,957	202,295	-	-	12,41
Byproduct and Water Gas	345	63,338	1,251,931	-	-	-
Smithing	498	-	-	-	-	-
North Carolina Total	227	-	160	-	-	-
Industrial	227	-	-	-	-	-
Retail Yards	-	-	160	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
South Carolina Total	-	-	868	-	-	-
Industrial	-	-	868	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Virginia Total	23,159	9,656	62,173	307	-	3,08
Industrial	17,528	8,865	57,700	307	-	3,08
Retail Yards	5,631	791	4,473	-	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	-	-	-	-	-	-

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STRICT OF ORIGIN								
7	8	9	10	11	12	13	14	15
20,641	3,984	–	–	–	–	–	–	–
19,371	3,984	–	–	–	–	–	–	–
1,270	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
1,347,091	28,185	–	–	–	–	–	–	–
924,488	4,358	–	–	–	–	–	–	–
422,603	15,354	–	–	–	–	–	–	–
–	8,473	–	–	–	–	–	–	–
2,692	101,548	8,192	–	–	–	113,756	–	–
–	35,407	7,638	–	–	–	92,265	–	–
2,264	43,601	554	–	–	–	20,744	–	–
–	22,540	–	–	–	–	–	–	–
428	–	–	–	–	–	747	–	–
5,324	2,151,251	48,948	–	–	–	341,214	–	–
4,438	1,025,804	6,230	–	–	–	192,321	–	–
768	1,114,204	42,718	–	–	–	146,565	–	–
–	10,346	–	–	–	–	–	–	–
118	897	–	–	–	–	2,323	–	–
406,702	75,919	–	–	–	–	–	–	–
138,483	65,406	–	–	–	–	–	–	–
234,457	10,155	–	–	–	–	–	–	–
33,710	358	–	–	–	–	–	–	–
52	–	–	–	–	–	–	–	–
1,495,490	4,385,853	405	–	–	–	27,633	–	–
1,146,965	2,503,375	355	–	–	–	26,683	–	–
347,440	1,799,562	50	–	–	–	950	–	–
–	82,916	–	–	–	–	–	–	–
1,085	–	–	–	–	–	–	–	–
269,150	2,005,005	254	–	–	–	32,832	–	–
259,532	1,218,734	254	–	–	–	28,348	–	–
9,336	747,585	–	–	–	–	4,484	–	–
–	38,686	–	–	–	–	–	–	–
282	–	–	–	–	–	–	–	–
4,953,562	2,849,927	3,894	–	–	–	1,195	–	–
3,510,912	1,690,107	3,841	–	–	–	1,195	–	–
1,439,149	772,509	53	–	–	–	–	–	–
2,928	387,311	–	–	–	–	–	–	–
573	–	–	–	–	–	–	–	–

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (continu

REGION, STATE, AND USE	DISTRICT OF ORIGIN					
	16	17	18	19	20	21
South Atlantic						
Delaware Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
District of Columbia Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Florida Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Georgia Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Maryland Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
North Carolina Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
South Carolina Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Virginia Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	-	-	-	-	-	-

22	23	Distribution of Total Production Reported on Forms S.F.A.Nos.38 and 56	Waterborne Shipments via Lake and Tidewater 2/ Great Lakes	Tidewater	Total	Grand Total Distribution
–	–	342,704	–	49	49	342,753
–	–	304,473	–	49	49	304,522
–	–	37,082	–	–	–	37,082
–	–	1,149	–	–	–	1,149
–	–	1,710,261	–	–	–	1,710,261
–	–	1,236,905	–	–	–	1,236,905
–	–	464,883	–	–	–	464,883
–	–	8,473	–	–	–	8,473
–	–	226,188	–	–	–	226,188
–	–	135,310	–	–	–	135,310
–	–	67,163	–	–	–	67,163
–	–	22,540	–	–	–	22,540
–	–	1,175	–	–	–	1,175
–	–	2,547,155	–	–	–	2,547,155
–	–	1,229,211	–	–	–	1,229,211
–	–	1,304,255	–	–	–	1,304,255
–	–	10,346	–	–	–	10,346
–	–	3,343	–	–	–	3,343
–	–	4,102,645	–	1,199,189	1,199,189	5,301,834
–	–	2,101,099	–	992,641	992,641	3,093,740
–	–	651,314	–	69	69	651,383
–	–	1,349,682	–	206,479	206,479	1,556,161
–	–	550	–	–	–	550
–	–	5,909,768	–	–	–	5,909,768
–	–	3,677,605	–	–	–	3,677,605
–	–	2,148,162	–	–	–	2,148,162
–	–	82,916	–	–	–	82,916
–	–	1,085	–	–	–	1,085
–	–	2,308,109	–	–	–	2,308,109
–	–	1,507,736	–	–	–	1,507,736
–	–	761,405	–	–	–	761,405
–	–	38,686	–	–	–	38,686
–	–	282	–	–	–	282
–	–	7,906,962	–	41,933	41,933	7,948,895
–	–	5,293,544	–	41,661	41,661	5,335,205
–	–	2,222,606	–	272	272	2,222,878
–	–	390,239	–	–	–	390,239
–	–	573	–	–	–	573

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TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (contin

REGION, STATE, AND USE	1	2	3	4	5	6
West Virginia Total	161,869	2,141,698	1,238,534	17,543	-	249,89
Industrial	30,813	138,582	546,375	12,737	-	249,76
Retail Yards	4,662	-	57,255	4,806	-	13
Byproduct and Water Gas 3/	125,718	2,003,116	634,904	-	-	-
Smithing	676	-	-	-	-	-
East South Central						
Alabama Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Kentucky Total	45	2,429	-	18,323	-	-
Industrial	-	2,429	-	18,273	-	-
Retail Yards	-	-	-	50	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	45	-	-	-	-	-
Mississippi Total	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Tennessee Total	401	1,877	3,003	-	-	-
Industrial	401	1,877	3,003	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
West South Central						
Arkansas Total	165	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	165	-	-	-	-	-
Louisiana Total	120	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	120	-	-	-	-	-
Oklahoma Total	286	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	286	-	-	-	-	-

STRICT OF ORIGIN

7	8	9	10	11	12	13	14	15
363,342	3,379,756	-	26	-	-	-	-	-
98,095	2,735,932	-	26	-	-	-	-	-
100,400	43,368	-	-	-	-	-	-	-
164,185	600,456	-	-	-	-	-	-	-
662	-	-	-	-	-	-	-	-
145,632	86,569	67,829	28,055	-	-	8,546,605	-	-
23,160	19,920	39,926	19,490	-	-	1,426,136	-	-
443	66,649	27,903	8,565	-	-	759,999	-	-
122,029	-	-	-	-	-	6,357,809	-	-
-	-	-	-	-	-	2,661	-	-
261,834	2,779,791	1,629,512	940	5,907	-	459	-	-
39,214	713,146	1,102,196	-	5,488	-	-	-	-
64,332	1,279,526	527,316	940	419	-	394	-	-
157,920	787,119	-	-	-	-	-	-	-
368	-	-	-	-	-	65	-	-
-	2,151	297,278	36,659	-	-	148,014	-	-
-	-	147,249	10,845	-	-	42,738	-	-
-	2,151	150,029	25,814	-	-	102,295	-	-
-	-	-	-	-	-	2,981	-	-
30,164	3,380,273	2,091,631	84,603	-	-	452,924	-	-
11,034	2,143,013	932,538	8,873	-	-	167,007	-	-
1,598	1,125,137	1,159,093	75,730	-	-	163,802	-	-
17,482	111,544	-	-	-	-	119,827	-	-
50	579	-	-	-	-	2,288	-	-
-	2,227	115,923	112,508	-	-	26,112	71,552	5,394
-	-	64,723	23,734	-	-	6,778	32,066	1,847
-	2,227	51,200	88,774	-	-	17,419	39,486	3,547
-	-	-	-	-	-	1,915	-	-
-	-	40,522	8,922	-	-	39,753	400	6,187
-	-	24,207	5,217	-	-	12,569	-	943
-	-	16,315	3,705	-	-	23,731	400	5,244
-	-	-	-	-	-	3,453	-	-
-	-	-	-	-	-	35	34,861	301,487
-	-	-	-	-	-	-	34,130	181,303
-	-	-	-	-	-	-	731	120,184
-	-	-	-	-	-	35	-	-

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (continued

REGION, STATE, AND USE	DISTRICT OF ORIGIN 16	17	18	19	20	21
West Virginia Total	–	–	–	–	–	–
Industrial	–	–	–	–	–	–
Retail Yards	–	–	–	–	–	–
Byproduct and Water Gas 3/	–	–	–	–	–	–
Smithing	–	–	–	–	–	–
East South Central						
Alabama Total	–	–	–	–	–	–
Industrial	–	–	–	–	–	–
Retail Yards	–	–	–	–	–	–
Byproduct and Water Gas 3/	–	–	–	–	–	–
Smithing	–	–	–	–	–	–
Kentucky Total	–	–	–	–	–	–
Industrial	–	–	–	–	–	–
Retail Yards	–	–	–	–	–	–
Byproduct and Water Gas 3/	–	–	–	–	–	–
Smithing	–	–	–	–	–	–
Mississippi Total	–	–	–	–	–	–
Industrial	–	–	–	–	–	–
Retail Yards	–	–	–	–	–	–
Smithing	–	–	–	–	–	–
Tennessee Total	–	–	–	–	–	–
Industrial	–	–	–	–	–	–
Retail Yards	–	–	–	–	–	–
Byproduct and Water Gas 3/	–	–	–	–	–	–
Smithing	–	–	–	–	–	–
West South Central						
Arkansas Total	–	–	–	–	–	–
Industrial	–	–	–	–	–	–
Retail Yards	–	–	–	–	–	–
Smithing	–	–	–	–	–	–
Louisiana Total	–	–	–	–	–	–
Industrial	–	–	–	–	–	–
Retail Yards	–	–	–	–	–	–
Smithing	–	–	–	–	–	–
Oklahoma Total	–	7,723	–	–	–	–
Industrial	–	167	–	–	–	–
Retail Yards	–	7,556	–	–	–	–
Smithing	–	–	–	–	–	–

22	23	Distribution of Total Production Reported on Forms S.F.A.Nos. 38 and 56	Waterborne Shipments via Lake and Tidewater 2/ Great Lakes	Tidewater	Total	Grand Total Distribution
-	-	7,552,658	-	-	-	7,552,658
-	-	3,812,320	-	-	-	3,812,320
-	-	210,621	-	-	-	210,621
-	-	3,528,379	-	-	-	3,528,379
-	-	1,338	-	-	-	1,338
-	-	8,874,690	-	-	-	8,874,690
-	-	1,528,632	-	-	-	1,528,632
-	-	863,559	-	-	-	863,559
-	-	6,479,838	-	-	-	6,479,838
-	-	2,661	-	-	-	2,661
-	-	4,699,240	-	-	-	4,699,240
-	-	1,880,746	-	-	-	1,880,746
-	-	1,872,977	-	-	-	1,872,977
-	-	945,039	-	-	-	945,039
-	-	478	-	-	-	478
-	-	484,102	-	-	-	484,102
-	-	200,832	-	-	-	200,832
-	-	280,289	-	-	-	280,289
-	-	2,981	-	-	-	2,981
-	-	6,044,876	-	-	-	6,044,876
-	-	3,267,746	-	-	-	3,267,746
-	-	2,525,360	-	-	-	2,525,360
-	-	248,853	-	-	-	248,853
-	-	2,917	-	-	-	2,917
-	-	333,881	-	-	-	333,881
-	-	129,148	-	-	-	129,148
-	-	202,653	-	-	-	202,653
-	-	2,080	-	-	-	2,080
-	-	95,904	-	-	-	95,904
-	-	42,936	-	-	-	42,936
-	-	49,395	-	-	-	49,395
-	-	3,573	-	-	-	3,573
-	-	344,392	-	-	-	344,392
	-	215,600	-	-	-	215,600
	-	128,471	-	-	-	128,471
	-	321	-	-	-	321

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (continu

REGION, STATE, AND USE						D
	1	2	3	4	5	6
Texas Total	879	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	879	-	-	-	-	-
Mountain						
Arizona Total	85	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	85	-	-	-	-	-
Colorado Total	1,260	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	1,260	-	-	-	-	-
Idaho Total	114	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	114	-	-	-	-	-
Montana Total	473	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	473	-	-	-	-	-
Nevada Total	225	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	225	-	-	-	-	-
New Mexico Total	90	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	90	-	-	-	-	-
Utah Total	135	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas 3/	-	-	-	-	-	-
Smithing	135	-	-	-	-	-

RICT OF ORIGIN

7	8	9	10	11	12	13	14	15
97	-	-	-	-	-	4,902	21,155	246,603
-	-	-	-	-	-	-	20,223	89,576
-	-	-	-	-	-	226	932	157,027
97	-	-	-	-	-	4,676	-	-
57	-	-	-	-	-	51	-	-
-	-	-	-	-	-	-	-	-
57	-	-	-	-	-	-	-	-
-	-	-	-	-	-	51	-	-
47	-	-	-	-	-	-	56,538	-
-	-	-	-	-	-	-	40,208	-
-	-	-	-	-	-	-	768	-
-	-	-	-	-	-	-	15,562	-
47	-	-	-	-	-	-	-	-
319	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
230	-	-	-	-	-	-	-	-
89	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (con

REGION, STATE, AND USE	DISTRICT OF ORIGIN					
	16	17	18	19	20	21
Texas Total	-	17,219	2,351	-	-	-
Industrial	-	3,894	-	-	-	-
Retail Yards	-	13,325	2,351	-	-	-
Smithing	-	-	-	-	-	-
Mountain						
Arizona Total	-	12,454	30,319	-	-	-
Industrial	-	8,656	10,641	-	-	-
Retail Yards	-	3,798	19,678	-	-	-
Smithing	-	-	-	-	-	-
Colorado Total	1,057,208	1,785,433	-	128,930	21,909	-
Industrial	562,343	266,061	-	120,825	134	-
Retail Yards	494,865	522,200	-	8,105	21,775	-
Byproduct and Water Gas 3/	-	997,000	-	-	-	-
Smithing	-	172	-	-	-	-
Idaho Total	-	3,375	-	139,702	795,447	-
Industrial	-	575	-	71,154	111,397	-
Retail Yards	-	2,800	-	68,548	684,050	-
Smithing	-	-	-	-	-	-
Montana Total	-	-	-	144,865	30,851	-
Industrial	-	-	-	71,606	1,167	-
Retail Yards	-	-	-	73,259	29,684	-
Smithing	-	-	-	-	-	-
Nevada Total	-	-	-	3,056	189,851	-
Industrial	-	-	-	3,056	126,002	-
Retail Yards	-	-	-	-	63,849	-
Smithing	-	-	-	-	-	-
New Mexico Total	-	113,901	24,735	-	-	-
Industrial	-	40,449	2,411	-	-	-
Retail Yards	-	73,147	22,324	-	-	-
Smithing	-	305	-	-	-	-
Utah Total	-	448	-	37,984	1,838,084	-
Industrial	-	-	-	36,976	342,189	-
Retail Yards	-	448	-	1,008	624,127	-
Byproduct and Water Gas 3/	-	-	-	-	871,768	-
Smithing	-	-	-	-	-	-

ied)

22	23	Distribution of Total Production Reported on Forms S.F.A.Nos.38 and 56	Waterborne Shipments via Lake and Tidewater 2/ Great Lakes	Tidewater	Total	Grand Total Distribution
-	-	293,206	-	-	-	293,206
-	-	113,693	-	-	-	113,693
-	-	173,861	-	-	-	173,861
-	-	5,652	-	-	-	5,652
-	-	42,966	-	-	-	42,966
-	-	19,297	-	-	-	19,297
-	-	23,533	-	-	-	23,533
-	-	136	-	-	-	136
-	-	3,051,325	-	-	-	3,051,325
-	-	989,571	-	-	-	989,571
-	-	1,047,713	-	-	-	1,047,713
-	-	1,012,562	-	-	-	1,012,562
-	-	1,479	-	-	-	1,479
8,561	162	947,680	-	-	-	947,680
3,948	162	187,236	-	-	-	187,236
4,613	-	760,241	-	-	-	760,241
-	-	203	-	-	-	203
260,729	-	436,918	205	-	205	437,123
97,433	-	170,206	205	-	205	170,411
163,296	-	266,239	-	-	-	266,239
-	-	473	-	-	-	473
-	-	193,132	-	-	-	193,132
-	-	129,058	-	-	-	129,058
-	-	63,849	-	-	-	63,849
-	-	225	-	-	-	225
-	-	138,779	-	-	-	138,779
-	-	42,913	-	-	-	42,913
-	-	95,471	-	-	-	95,471
-	-	395	-	-	-	395
-	-	1,876,651	-	-	-	1,876,651
-	-	379,165	-	-	-	379,165
-	-	625,583	-	-	-	625,583
-	-	871,768	-	-	-	871,768
-	-	135	-	-	-	135

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (continu

REGION, STATE, AND USE	1	2	3	4	5	6
Wyoming Total	83	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	83	-	-	-	-	-
Pacific						
California Total	1,084	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	1,084	-	-	-	-	-
Oregon Total	231	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Smithing	231	-	-	-	-	-
Washington Total	80	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	80	-	-	-	-	-
Storage	-	-	-	-	-	-
Unknown State Total	44,346	51,242	5,203	6,711	-	-
Industrial	42,996	51,242	5,203	5,569	-	-
Retail Yards	1,350	-	-	1,142	-	-
Byproduct and Water Gas	-	-	-	-	-	-
United States Total	20,105,088	41,224,516	16,592,065	11,318,872	29,540	1,196,756
Industrial	14,769,489	10,739,269	9,966,418	9,056,004	15,777	1,078,191
Retail Yards	1,885,383	2,010,815	2,296,975	2,245,808	13,763	118,565
Byproduct and Water Gas 3/	3,392,605	28,472,905	4,297,903	17,060	-	-
Smithing	57,611	1,239	207	-	-	-
Storage	-	288	-	-	-	-
Use not Reported	-	-	30,562	-	-	-
Canada Total 4/	370,488	561,997	793,498	35,418	-	3,251
Industrial	279,994	321,921	586,070	21,244	-	2,716
Retail Yards	70,679	37,943	207,428	14,174	-	535
Byproduct and Water Gas	-	202,133	-	-	-	-
Smithing	19,815	-	-	-	-	-
Storage	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-

)

ISTRICT OF ORIGIN								
7	8	9	10	11	12	13	14	15
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
178	-	-	-	-	-	-	41,515	-
-	-	-	-	-	-	-	38,623	-
53	-	-	-	-	-	-	152	-
-	-	-	-	-	-	-	2,740	-
125	-	-	-	-	-	-	-	-
108	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
55	-	-	-	-	-	-	-	-
53	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
58	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
2,337	57,755	39	2,853	-	-	2,429	819	3,868
2,276	50,224	39	2,348	-	-	2,429	751	876
61	7,531	-	-	-	-	-	68	2,992
-	-	-	505	-	-	-	-	-
7,462,521	57,038,751	7,118,651	36,050,540	11,801,533	605,315	9,740,756	1,067,302	4,640,253
6,932,221	25,237,653	3,806,043	23,167,131	8,835,842	509,892	1,999,077	215,262	2,410,064
3,620,864	21,839,083	3,312,096	12,500,187	2,891,101	95,423	1,242,125	833,421	2,230,189
6,881,825	9,945,848	-	383,222	74,590	-	6,477,636	18,619	-
13,986	2,473	-	-	-	-	21,918	-	-
-	502	512	-	-	-	-	-	-
13,625	13,192	-	-	-	-	-	-	-
226,792	474,818	7,552	171	-	-	-	-	-
23,679	222,723	7,052	-	-	-	-	-	-
185,032	236,900	500	171	-	-	-	-	-
16,698	15,195	-	-	-	-	-	-	-
1,383	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (continue

REGION, STATE, AND USE	DISTRICT OF ORIGIN					
	16	17	18	19	20	21
Wyoming Total	5,889	27,109	-	293,194	-	-
Industrial	3,614	8,818	-	172,162	-	-
Retail Yards	2,275	18,291	-	121,009	-	-
Smithing	-	-	-	23	-	-
Pacific						
California Total	-	3,951	4,282	22,233	562,355	-
Industrial	-	614	779	6,628	111,719	-
Retail Yards	-	3,337	3,503	15,605	81,428	-
Byproduct and Water Gas	-	-	-	-	369,208	-
Smithing	-	-	-	-	-	-
Oregon Total	-	3,633	-	96,096	304,255	-
Industrial	-	-	-	62,903	70,279	-
Retail Yards	-	3,633	-	33,193	233,976	-
Smithing	-	-	-	-	-	-
Washington Total	-	25,554	-	654,962	816,651	-
Industrial	-	227	-	427,966	144,715	-
Retail Yards	-	25,327	-	226,996	671,936	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Storage	-	-	-	-	-	-
Unknown State Total	-	100	-	-	-	1,358
Industrial	-	100	-	-	-	174
Retail Yards	-	-	-	-	-	1,184
Byproduct and Water Gas	-	-	-	-	-	-
United States Total	1,065,286	2,612,827	61,687	2,047,272	4,617,167	2,040,773
Industrial	566,046	347,634	13,831	1,268,056	911,902	1,052,784
Retail Yards	499,240	1,267,716	47,856	779,193	2,464,289	987,989
Byproduct and Water Gas 3/	-	997,000	-	-	1,240,976	-
Smithing	-	477	-	23	-	-
Storage	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-
Canada Total 4/	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Retail Yards	-	-	-	-	-	-
Byproduct and Water Gas	-	-	-	-	-	-
Smithing	-	-	-	-	-	-
Storage	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-

		Distribution of Total Production Reported on Forms S.F.A.Nos.38 and 56	Waterborne Shipments via Lake and Tidewater 2/			Grand Total Distribution
22	23		Great Lakes	Tidewater	Total	
411	-	326,686	-	-	-	326,686
202	-	184,796	-	-	-	184,796
209	-	141,784	-	-	-	141,784
-	-	106	-	-	-	106
-	-	635,598	-	-	-	635,598
-	-	158,363	-	-	-	158,363
-	-	104,078	-	-	-	104,078
-	-	371,948	-	-	-	371,948
-	-	1,209	-	-	-	1,209
-	1,513	405,836	-	-	-	405,836
-	954	134,136	-	-	-	134,136
-	559	271,416	-	-	-	271,416
-	-	284	-	-	-	284
08,651	390,340	1,996,296	-	2,802	2,802	1,999,098
31,969	307,975	912,852	-	2,802	2,802	915,654
76,682	69,343	1,070,284	-	-	-	1,070,284
-	11,346	11,346	-	-	-	11,346
-	-	138	-	-	-	138
-	1,676	1,676	-	-	-	1,676
-	-	179,060	-	18,475	18,475	197,535
-	-	164,227	-	4,079	4,079	168,306
-	-	14,328	-	11,761	11,761	26,089
-	-	505	-	2,635	2,635	3,140
489,190	392,015	259,318,676	32,568,179	29,120,964	61,689,143	321,007,819
162,540	309,091	123,370,217	12,678,712	18,744,540	31,423,252	154,793,469
326,650	69,902	73,578,633	7,572,361	4,135,605	11,707,966	85,286,599
-	11,346	62,211,535	12,314,508	6,240,731	18,555,239	80,766,774
-	-	97,934	2,598	88	2,686	100,620
-	1,676	2,978	-	-	-	2,978
-	-	57,379	-	-	-	57,379
-	-	2,473,985	10,811,513	97,569	10,909,082	13,383,067
-	-	1,465,399	2,685,323	-	2,685,323	4,150,722
-	-	753,362	15,236	-	15,236	768,598
-	-	234,026	3,005,813	-	3,005,813	3,239,839
-	-	21,198	-	-	-	21,198
-	-	-	5,102,829	-	5,102,829	5,102,829
-	-	-	2,312	97,569	99,881	99,881

TABLE I

DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DURING THE CALENDAR YEAR 1946 (conti

REGION, STATE, AND USE	DISTRICT OF ORIGIN					
	16	17	18	19	20	21
United States and Canada Total	1,065,286	2,612,827	61,687	2,047,272	4,617,167	2,040,77
Industrial	566,046	347,634	13,831	1,268,056	911,902	1,052,78
Retail Yards	499,240	1,267,716	47,856	779,193	2,464,289	987,98
Byproduct and Water Gas 3/	-	997,000	-	-	1,240,976	-
Smithing	-	477	-	23	-	-
Storage	-	-	-	-	-	-
Use not Reported	-	-	-	-	-	-
2. Exports Overseas 5/	-	-	-	-	-	-
3. Vessel and Bunker Fuel	-	-	-	-	-	-
4. Railroad Fuel-U.S.and Canada	19,750	1,387,017	63,970	5,161,124	682,474	144,38
5. Tidewater	-	146,873	-	35,063	234,543	-
6. Lake	-	-	-	-	-	-
7. Truck 6/	642,650	296,321	22,318	80,530	150,052	130,7
8. Distributors and Wholesalers (Destination and Use Unknown)	-	3,279	-	111,706	108,278	-
9. Private Railroads, Tramways, and Conveyors	18,487	7,925	22,703	-	1,501	-
10. Coal used at mine 7/	41,013	88,571	7,713	132,804	31,183	83,8
11. Other disposals not specified above	-	-	-	-	51	-
12. Net change in Inventory	-858	6,406	-3,556	-2,636	-3,724	2,6
Total Production Reported	1,786,328	4,549,219	174,835	7,565,863	5,821,525	2,402,3
13. Estimated Truck Production not Reported 8/	34,046	305,689	75,563	66,084	104,329	258,1
GRAND TOTAL	1,820,374	4,854,908	250,398	7,631,947	5,925,854	2,660,5

5/ The item export includes only shipments to tidewater ports for cargoes destined to points o
shown here are not all inclusive.
6/ Includes only mines with an average daily capacity of 50 tons or more and all mines with ra
7/ Includes coal used to produce coal, coal used by mine employees and coal made into briquets
8/ Represents total truck tonnages reported for the calendar year 1946 less (1) tonnages inclu
beehive coke ovens away from the producing mine and for smithing use and (2) truck tonnages
mines not required to report on Forms S.F.A. Nos. 38 and 56.

		Distribution of Total Production Reported on Forms S.F.A.Nos.38 and 56	Waterborne Shipments via Lake and Tidewater 2/			Grand Total Distribution
22	23		Great Lakes	Tidewater	Total	
489,190	392,015	261,792,661	43,379,692	29,218,533	72,598,225	334,390,886
162,540	309,091	124,835,616	15,364,035	18,744,540	34,108,575	158,944,191
326,650	69,902	74,331,995	7,587,597	4,135,605	11,723,202	86,055,197
-	11,346	62,445,561	15,320,321	6,240,731	21,561,052	84,006,613
-	-	119,132	2,598	88	2,686	121,818
-	1,676	2,978	5,102,829	-	5,102,829	5,105,807
-	-	57,379	2,312	97,569	99,881	157,260
-	-	-	-	18,093,736	18,093,736	18,093,736
-	-	-	2,284,313	1,016,673	3,300,986	3,300,986
,064,267	241,545	98,378,238	5,243,763	392,041	5,635,804	104,014,042
-	365	40,925,545	-	-	-	-
-	-	46,950,410	-	-	-	-
21,073	219,723	22,828,023	-	-	-	22,828,023
24,442	18,161	5,293,379	-	-	-	5,293,379
-	18,530	4,283,888	-	-	-	4,283,888
14,328	23,313	4,372,293	-	-	-	4,372,293
-	-	21,716	-	-	-	21,716
-950	-2,972	277,377	-	-	-	277,377
,612,350	910,680	485,123,530	50,907,768	48,720,983	99,628,751	496,876,326
109,876	138,827	19,022,688	-	-	-	19,022,688
,722,226	1,049,507	504,146,218	50,907,768	48,720,983	99,628,751	515,899,014

e the United States and Canada as are reported to this office. The tonnages

river connections that report on Forms S.F.A. Nos. 38 and 56.
ackaged fuel at the reporting mine.
n Rail, River and Ex-river movement for shipments by truck to byproduct and
n in Item 7. These approximate tonnages were those produced at small truck

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SHIPMENTS OF BITUMINOUS COAL VIA TIDEWATER TO ALONGSIDE CONSUMERS AND EX-DOCK SHIPMENTS FROM COMMERCIAL DOCKS AS REPORTED ON CARGO MANIFESTS, INVOICES, SUMMARY REPORTS AND FORM S.F.A. NO. 48 DURING THE CALENDAR YEAR 1946, BY DISTRICT OF ORIGIN, STATE OF DESTINATION AND USE 1/
(In net tons of 2,000 pounds)

TABLE 2

State of Destination and Use	DISTRICT OF ORIGIN (Interport shipments only to alongside consumers)																Total Shipments to alongside consumers	Ex-dock Shipments from commercial docks 2/	Grand Total
	1	2	3	6	7	8	9	10	13	14	15	17	19	20	23	Unknown			
Connecticut																			
Total	47,054	51	18,589	-	650,488	417,928	-	-	-	-	-	-	-	-	-	-	1,134,110	1,517,594	2,651,704
Industrial	47,054	51	7,905	-	433,774	115,114	-	-	-	-	-	-	-	-	-	-	603,898	1,134,069	1,737,967
Retail Dealers	-	-	10,684	-	15,337	650	-	-	-	-	-	-	-	-	-	-	26,671	369,063	395,734
Byproduct	-	-	-	-	201,377	290,643	-	-	-	-	-	-	-	-	-	-	492,020	-	492,020
Water Gas	-	-	-	-	-	11,521	-	-	-	-	-	-	-	-	-	-	11,521	14,462	25,983
Delaware																			
Total	45	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	49	-	49
Industrial	45	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	49	-	49
Maine																			
Total	-	-	-	-	246,201	2,836	-	-	-	-	-	-	-	-	-	-	249,037	852,152	1,101,189
Industrial	-	-	-	-	230,683	1,144	-	-	-	-	-	-	-	-	-	-	231,827	561,793	793,620
Retail Dealers	-	-	-	-	15,518	1,692	-	-	-	-	-	-	-	-	-	-	17,210	290,165	307,375
Water Gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	106	106
Smithing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	88
Maryland																			
Total	984,943	13,903	8,370	-	191,973	-	-	-	-	-	-	-	-	-	-	-	1,199,189	-	1,199,189
Industrial	984,085	5,331	3,225	-	-	-	-	-	-	-	-	-	-	-	-	-	992,641	-	992,641
Retail Dealers	-	69	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	-	69
Byproduct	-	-	-	-	191,973	-	-	-	-	-	-	-	-	-	-	-	191,973	-	191,973
Water Gas	858	8,503	5,145	-	-	-	-	-	-	-	-	-	-	-	-	-	14,506	-	14,506
Massachusetts																			
Total	144,560	13,683	16,880	-	1,755,083	260,179	-	-	-	-	-	-	-	-	-	-	2,190,385	4,060,434	6,250,819
Industrial	144,560	13,683	14,327	-	1,495,885	113,428	-	-	-	-	-	-	-	-	-	-	1,781,883	1,144,831	2,926,714
Retail Dealers	-	-	2,553	-	214,010	633	-	-	-	-	-	-	-	-	-	-	217,196	1,460,154	1,677,350
Byproduct	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,453,867	1,453,867
Water Gas	-	-	-	-	45,188	146,118	-	-	-	-	-	-	-	-	-	-	191,306	1,582	192,888
New Hampshire																			
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	393,360	393,360
Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	269,496	269,496
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	122,071	122,071
Water Gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,793	1,793
New Jersey																			
Total	1,430,127	81,218	732,558	-	1,143,229	961,726	-	-	-	-	-	-	-	-	-	-	4,348,858	-	4,348,858
Industrial	1,430,127	81,218	684,713	-	634,481	-	-	-	-	-	-	-	-	-	-	-	2,830,539	-	2,830,539
Retail Dealers	-	-	-	-	373	277	-	-	-	-	-	-	-	-	-	-	650	-	650
Byproduct	-	-	47,845	-	422,351	952,964	-	-	-	-	-	-	-	-	-	-	1,423,160	-	1,423,160
Water Gas	-	-	-	-	86,024	8,485	-	-	-	-	-	-	-	-	-	-	94,509	-	94,509
New York																			
Total	6,605,613	218,304	945,478	-	872,096	756,028	-	-	-	-	-	-	-	-	-	13,731	9,411,250	193,087	9,604,337

Retail Dealers	[illegible]	[illegible]	[illegible]	-	[illegible]	[illegible]	-	-	-	-	-	-	-	-	-	-	869,264	-	869,264
Water Gas	3,643	-	9,943	-	65,409	503,009	-	-	-	-	-	-	-	-	-	-	582,004	-	582,004
Pennsylvania																			
Total	1,609,273	5,879	264,346	-	259,250	167,483	-	-	-	-	-	-	-	-	-	-	2,306,231	-	2,306,231
Industrial	1,609,220	5,879	76,613	-	-	-	-	-	-	-	-	-	-	-	-	-	1,691,712	-	1,691,712
Retail Dealers	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	-	53
Byproduct	-	-	187,733	-	259,250	167,483	-	-	-	-	-	-	-	-	-	-	614,466	-	614,466
Rhode Island																			
Total	2,402	-	-	-	386,943	209,869	-	-	-	-	-	-	-	-	-	-	599,214	570,753	1,169,967
Industrial	2,402	-	-	-	239,580	68,977	-	-	-	-	-	-	-	-	-	-	310,959	32,001	342,960
Retail Dealers	-	-	-	-	6,698	-	-	-	-	-	-	-	-	-	-	-	6,698	538,752	545,450
Byproduct	-	-	-	-	72,196	33,410	-	-	-	-	-	-	-	-	-	-	105,606	-	105,606
Water Gas	-	-	-	-	68,469	107,482	-	-	-	-	-	-	-	-	-	-	175,951	-	175,951
Vermont																			
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32,051	32,051
Industrial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31,840	31,840
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	211	211
Virginia																			
Total	683	-	-	-	40,523	727	-	-	-	-	-	-	-	-	-	-	41,933	-	41,933
Industrial	683	-	-	-	40,251	727	-	-	-	-	-	-	-	-	-	-	41,661	-	41,661
Retail Dealers	-	-	-	-	272	-	-	-	-	-	-	-	-	-	-	-	272	-	272
Washington																			
Total	2,802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,802	-	2,802
Industrial	2,802	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,802	-	2,802
Unknown State																			
Total	408	280	1,001	-	12,934	3,852	-	-	-	-	-	-	-	-	-	-	18,475	-	18,475
Industrial	-	-	-	-	3,541	538	-	-	-	-	-	-	-	-	-	-	4,079	-	4,079
Retail Dealers	408	280	1,001	-	9,393	679	-	-	-	-	-	-	-	-	-	-	11,761	-	11,761
Water Gas	-	-	-	-	-	2,635	-	-	-	-	-	-	-	-	-	-	2,635	-	2,635
United States																			
Total	10,827,910	333,318	1,987,226	-	5,558,720	2,780,628	-	-	-	-	-	-	-	-	-	13,731	21,501,533	7,619,431	29,120,964
Industrial	10,264,533	276,580	1,591,906	-	3,111,416	325,899	-	-	-	-	-	-	-	-	-	-	15,570,334	3,174,206	18,744,540
Retail Dealers	556,815	45,316	138,009	-	398,232	10,175	-	-	-	-	-	-	-	-	-	13,731	1,162,278	2,973,327	4,135,605
Byproduct	2,061	2,919	242,223	-	1,783,982	1,665,304	-	-	-	-	-	-	-	-	-	-	3,696,489	1,453,867	5,150,356
Water Gas	4,501	8,503	15,088	-	265,090	779,250	-	-	-	-	-	-	-	-	-	-	1,072,432	17,943	1,090,375
Smithing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	88
Canada																			
Total	-	-	2,486	-	37,053	58,030	-	-	-	-	-	-	-	-	-	-	97,569	-	97,569
Use not reported	-	-	2,486	-	37,053	58,030	-	-	-	-	-	-	-	-	-	-	97,569	-	97,569
United States and Canada																			
Total	10,827,910	333,318	1,989,712	-	5,595,773	2,838,658	-	-	-	-	-	-	-	-	-	13,731	21,599,102	7,619,431	29,218,533
Industrial	10,264,533	276,580	1,591,906	-	3,111.416	325,899	-	-	-	-	-	-	-	-	-	-	15,570,334	3,174,206	18,744,540
Retail Dealers	556,815	45,316	138,009	-	398,232	10,175	-	-	-	-	-	-	-	-	-	13,731	1,162,278	2,973,327	4,135,605
Byproduct	2,061	2,919	242,223	-	1,783,982	1,665,304	-	-	-	-	-	-	-	-	-	-	3,696,489	1,453,867	5,150,356
Water Gas	4,501	8,503	15,088	-	265,090	779,250	-	-	-	-	-	-	-	-	-	-	1,072,432	17,943	1,090,375
Smithing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	88
Use not reported	-	-	2,486	-	37,053	58,030	-	-	-	-	-	-	-	-	-	-	97,569	-	97,569
Railroad Fuel	-	-	-	-	3,159	349,661	-	-	-	-	-	-	-	-	-	-	352,820	39,221	392,041
Bunker Fuel	268,488	31,950	122,197	-	388,858	112,391	-	7,549	54,713	-	-	-	-	3,122	3,909	-	993,177	23,496	1,016,673
Export Overseas 3/	4,962,787	2,671,903	1,529,947	25,313	1,590,587	2,482,129	1,402,228	275,981	1,759,644	34,113	976,851	145,474	28,013	204,491	3,997	278	18,093,736	-	18,093,736
GRAND TOTAL	16,059,185	3,037,171	3,641,856	25,313	7,578,377	5,782,839	1,402,228	283,530	1,814,357	34,113	976,851	145,474	28,013	207,613	7,906	14,009	41,038,835	7,682,148	48,720,983

1/ Represents the distribution of coal that moved from the mines via tidewater during the Calendar Year 1946 to consumer states, by uses.
2/ District of Origin of coal moving from commercial docks not ascertainable.
3/ This item includes only such shipments to tidewater ports for cargoes destined to points outside the United States and Canada as are reported to this office. The tonnages shown are not all inclusive.

TABLE 3

SHIPMENTS OF BITUMINOUS COAL VIA GREAT LAKES TO ALONGSIDE CONSUMERS AND EX-DOCK SHIPMENTS FROM COMMERCIAL DOCKS AS REPORTED ON CARGO MANIFESTS, INVOICES, SUMMARY REPORTS AND FORM S.F.A. NO. 48 DURING THE CALENDAR YEAR 1946, BY DISTRICT OF ORIGIN, STATE OF DESTINATION AND USE 1/

(In net tons of 2,000 pounds)

State of Destination and Use	DISTRICT OF ORIGIN (Interport shipments only to alongside consumers)										Total Shipments to alongside Consumers	Ex-dock shipments from Commercial Docks 2/	Grand Total
	1	2	3	4	6	7	8	9	10	11			
Illinois													
Total	-	278,297	67	-	-	314,889	904,217	-	-	-	1,497,470	134,145	1,631,615
Industrial	-	-	-	-	-	-	-	-	-	-	-	59,617	59,617
Retail Dealers	-	-	-	-	-	-	16,629	-	-	-	16,629	74,474	91,103
Byproduct	-	278,297	67	-	-	314,889	887,588	-	-	-	1,480,841	-	1,480,841
Smithing	-	-	-	-	-	-	-	-	-	-	-	54	54
Indiana													
Total	-	114,791	-	-	-	1,991,697	1,755,885	-	-	-	3,862,373	2,127	3,864,500
Industrial	-	-	-	-	-	-	-	-	-	-	-	2,080	2,080
Byproduct	-	114,791	-	-	-	1,991,697	1,755,885	-	-	-	3,862,373	-	3,862,373
Smithing	-	-	-	-	-	-	-	-	-	-	-	47	47
Iowa													
Total	-	-	-	-	-	-	-	-	-	-	-	118,151	118,151
Industrial	-	-	-	-	-	-	-	-	-	-	-	984	984
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	117,161	117,161
Smithing	-	-	-	-	-	-	-	-	-	-	-	6	6
Michigan													
Total	144,619	1,659,203	440,284	267,457	39,620	1,151,304	5,543,064	4,801	91,403	-	9,341,755	1,365,995	10,707,750
Industrial	144,619	1,335,471	202,340	249,137	39,620	435,819	3,859,748	4,801	78,921	-	6,350,476	483,547	6,834,023
Retail Dealers	-	-	-	18,203	-	9,623	332,218	-	12,482	-	372,526	866,761	1,239,287
Byproduct	-	322,409	237,944	117	-	705,862	1,351,098	-	-	-	2,617,430	15,457	2,632,887
Water Gas	-	1,323	-	-	-	-	-	-	-	-	1,323	-	1,323
Smithing	-	-	-	-	-	-	-	-	-	-	-	230	230
Minnesota													
Total	-	7,139	-	-	-	-	13,303	-	-	-	20,442	3,892,728	3,913,170
Industrial	-	7,139	-	-	-	-	13,303	-	-	-	20,442	1,346,241	1,366,683
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	2,076,185	2,076,185
Byproduct	-	-	-	-	-	-	-	-	-	-	-	461,050	461,050
Water Gas	-	-	-	-	-	-	-	-	-	-	-	7,732	7,732
Smithing	-	-	-	-	-	-	-	-	-	-	-	1,520	1,520
Montana													
Total	-	-	-	-	-	-	-	-	-	-	-	205	205
Industrial	-	-	-	-	-	-	-	-	-	-	-	205	205
Nebraska													
Total	-	-	-	-	-	-	-	-	-	-	-	7,569	7,569
Industrial	-	-	-	-	-	-	-	-	-	-	-	20	20
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	7,549	7,549
New York													
Total	578,011	502,743	372,292	3,731	-	766,581	366,319	-	-	-	2,589,677	49,075	2,638,752
Industrial	572,440	45,226	370,573	3,731	-	-	-	-	-	-	991,970	49,075	1,041,045
Retail Dealers	5,571	25,693	-	-	-	-	-	-	-	-	31,264	-	31,264
Byproduct	-	431,824	1,719	-	-	766,581	366,319	-	-	-	1,566,443	-	1,566,443
North Dakota													
Total	-	-	-	-	-	-	-	-	-	-	-	211,896	211,896
Industrial	-	-	-	-	-	-	-	-	-	-	-	30,880	30,880
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	180,907	180,907
Smithing	-	-	-	-	-	-	-	-	-	-	-	109	109
Ohio													
Total	-	-	-	-	-	102,754	209,254	-	-	-	312,008	-	312,008
Industrial	-	-	-	-	-	-	48	-	-	-	48	-	48
Retail Dealers	-	-	-	-	-	257	554	-	-	-	811	-	811
	-	-	-	-	-	102,497	208,652	-	-	-	311,149	-	311,149

Total	-	-	-	-	-	38,766	95,475	-	-				
Byproduct	-	-	-	-	-	38,766	95,475	-	-	-	134,241	-	134,241
South Dakota													
Total	-	-	-	-	-	-	-	-	-	-	-	352,403	352,403
Industrial	-	-	-	-	-	-	-	-	-	-	-	16,358	16,358
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	335,930	335,930
Water Gas	-	-	-	-	-	-	-	-	-	-	-	41	41
Smithing	-	-	-	-	-	-	-	-	-	-	-	74	74
Wisconsin													
Total	205,481	553,735	130,400	1,546	13,338	541,047	1,392,388	15,905	28,284	-	2,882,124	5,793,795	8,675,919
Industrial	205,481	531,856	114,042	1,546	13,338	34,680	202,088	15,905	28,284	-	1,147,220	2,179,549	3,326,769
Retail Dealers	-	-	-	-	-	9,556	40,993	-	-	-	50,549	3,441,615	3,492,164
Byproduct	-	21,879	16,358	-	-	496,811	1,149,307	-	-	-	1,684,355	171,958	1,856,313
Water Gas	-	-	-	-	-	-	-	-	-	-	-	115	115
Smithing	-	-	-	-	-	-	-	-	-	-	-	558	558
United States													
Total	928,111	3,115,908	943,043	272,734	52,958	4,907,038	10,279,905	20,706	119,687	-	20,640,090	11,928,089	32,568,179
Industrial	922,540	1,919,692	686,955	254,414	52,958	470,499	4,075,187	20,706	107,205	-	8,510,156	4,168,556	12,678,712
Retail Dealers	5,571	25,693	-	18,203		19,436	390,394	-	12,482	-	471,779	7,100,582	7,572,361
Byproduct	-	1,169,200	256,088	117	-	4,417,109	5,814,324	-	-	-	11,656,832	648,465	12,305,297
Water Gas	-	1,323	-	-	-	-	-	-	-	-	1,323	7,888	9,211
Smithing	-	-	-	-	-	-	-	-	-	-	-	2,598	2,598
Canada (excludes railroad fuel)													
Total	1,453,849	1,903,221	1,804,046	445,628	100,385	1,197,472	3,790,004	46,837	17,452	19,205	10,778,099	33,414	10,811,513
Industrial	514,291	405,141	607,451	101,723	9,328	436,833	554,425	37,953	-	-	2,667,145	18,178	2,685,323
Retail Dealers	-	-	-	-	-	-	-	-	-	-	-	15,236	15,236
Byproduct	105,202	510,796	7,207	11,639	-	414,758	1,767,339	-	-	-	2,816,941	-	2,816,941
Water Gas	-	87,660	-	-	-	-	101,212	-	-	-	188,872	-	188,872
Storage or Consignment 3/	832,044	899,624	1,189,388	332,266	91,057	345,881	1,367,028	8,884	17,452	19,205	5,102,829	-	5,102,829
Use Not Reported	2,312	-	-	-	-	-	-	-	-	-	2,312	-	2,312
United States and Canada													
Total	2,381,960	5,019,129	2,747,089	718,362	153,343	6,104,510	14,069,909	67,543	137,139	19,205	31,418,189	11,961,503	43,379,692
Industrial	1,436,831	2,324,833	1,294,406	356,137	62,286	907,332	4,629,612	58,659	107,205	-	11,177,301	4,186,734	15,364,035
Retail Dealers	5,571	25,693	-	18,203	-	19,436	390,394	-	12,482	-	471,779	7,115,818	7,587,597
Byproduct	105,202	1,679,996	263,295	11,756	-	4,831,861	7,581,663	-	-	-	14,473,773	648,465	15,122,238
Water Gas	-	88,983	-	-	-	-	101,212	-	-	-	190,195	7,888	198,083
Storage or Consignment 3/	832,044	899,624	1,189,388	332,266	91,057	345,881	1,367,028	8,884	17,452	19,205	5,102,829	-	5,102,829
Smithing	-	-	-	-	-	-	-	-	-	-	-	2,598	2,598
Use Not Reported	2,312	-	-	-	-	-	-	-	-	-	2,312	-	2,312
Railroad Fuel-United States & Canada	24,711	267,699	416,609	1,468,160	140,625	59	370,017	609,017	36,419	2,876	3,336,192	1,907,571	5,243,763
Vessel Fuel	15,198	264,859	65,813	413,461	25,945	-	429,735	-	1,306	787	1,217,104	1,067,209	2,284,313
GRAND TOTAL	2,421,869	5,551,687	3,229,511	2,599,983	319,913	6,104,569	14,869,661	676,560	174,864	22,868	35,971,485	14,936,283	50,907,768

1/ Represents the distribution of coal that moved from mines via Great Lakes during the calendar year 1946 to consumer states, by uses.
2/ District of origin of coal moving from commercial docks not ascertainable.
3/ Interport movement to Canada for storage or consignment is shown since Canadian Dock Operators are not required to file Form S.F.A. No. 48 reporting distribution from Commercial docks.

SHIPMENTS OF BITUMINOUS COAL AND LIGNITE DURING THE CALENDAR YEAR 1946,
AND METHOD OF MOVEMENT AS REPORTED ON FORMS S.F.A. NOS. 38, 48, AND 56
(In net tons of 2,000

TABLE 4

Size Group and Movement / District and Use	All Lump Coal and All Double Screened Coal With Top Size over 2" (1)					All Double Screened Coal with Top Size not Exceeding 2" (2)				
		Interport 2/					Interport 2/			
	All-Rail River and Ex-River 1/	Tidewater	Lake	Truck 3/	Total	All-Rail River and Ex-River 1/	Tidewater	Lake	Truck 3/	Total
District 1. Eastern Pennsylvania										
Total	1,583,823	115,836	88,918	105,073	1,893,650	1,321,715	178,035	286,033	94,097	1,879,880
Railroad Fuel	257,172	-	21,935	-	279,107	29,700	-	2,711	-	32,411
Industrial	568,864	6,519	21,696	-	597,079	873,227	18,178	80,858	-	972,263
Retail Dealers	723,145	35,207	737	-	759,089	394,456	151,913	821	-	547,190
Byproduct and Water Gas 5/	29,528	-	-	-	29,528	23,982	-	-	-	23,982
Smithing	-	-	-	-	-	-	-	-	-	-
Storage	-	-	40,128	-	40,128	-	-	192,254	-	192,254
Bunker and Vessel Fuel	-	69,305	4,422	-	73,727	-	6,933	9,389	-	16,322
Export 6/	-	4,805	-	-	4,805	-	1,011	-	-	1,011
Use Not Reported	5,114	-	-	105,073	110,187	350	-	-	94,097	94,447
District 2. Western Pennsylvania										
Total	4,094,707	159,260	557,872	1,367,199	6,179,038	1,698,627	43,803	247,421	333,099	2,322,950
Railroad Fuel	1,090,571	-	69,573	-	1,160,144	154,565	-	-	-	154,565
Industrial	1,326,508	70,700	28,701	-	1,425,909	903,677	30,359	49,972	-	984,008
Retail Dealers	1,307,367	6,694	-	-	1,314,061	472,470	12,461	7,622	-	492,553
Byproduct and Water Gas 5/	319,101	-	113,029	-	432,130	161,431	-	29,865	-	191,296
Smithing	-	-	-	-	-	-	-	-	-	-
Storage	288	-	160,885	-	161,173	-	-	152,009	-	152,009
Bunker and Vessel Fuel	-	12,106	185,684	-	197,790	-	46	7,953	-	7,999
Export 6/	-	69,760	-	-	69,760	-	937	-	-	937
Use Not Reported	50,872	-	-	1,367,199	1,418,071	6,484	-	-	333,099	339,583
District 3. Northern West Virginia 7/										
Total	1,685,760	169,544	215,075	13,837	2,084,216	5,179,036	151,427	867,982	69,962	6,268,407
Railroad Fuel	361,903	-	33,757	-	395,660	1,995,264	-	258,119	-	2,253,383
Industrial	349,867	1,595	23,157	-	374,619	1,777,408	4,014	120,824	-	1,902,246
Retail Dealers	891,503	22,308	-	-	913,811	1,089,498	41,176	-	-	1,130,674
Byproduct and Water Gas 5/	71,760	-	-	-	71,760	311,228	15,005	-	-	326,233
Smithing	-	-	-	-	-	-	-	-	-	-
Storage	-	-	143,505	-	143,505	-	-	444,120	-	444,120
Bunker and Vessel Fuel	-	46,564	14,656	-	61,220	-	24,944	44,919	-	69,863
Export 6/	-	99,077	-	-	99,077	-	63,853	-	-	63,853
Use Not Reported	10,727	-	-	13,837	24,564	5,638	2,435	-	69,962	78,035
District 4. Ohio										
Total	3,416,873	-	724,175	1,317,722	5,458,770	1,184,194	-	112,321	319,042	1,615,557
Railroad Fuel	1,297,297	-	228,923	-	1,526,220	27,832	-	17,505	-	45,337
Industrial	556,313	-	10,314	-	566,627	660,678	-	32,815	-	693,493
Retail Dealers	1,552,299	-	12,589	-	1,564,888	494,574	-	5,432	-	500,006
Byproduct and Water Gas	-	-	-	-	-	-	-	-	-	-
Storage	-	-	81,355	-	81,355	-	-	42,110	-	42,110
Bunker and Vessel Fuel	-	-	390,994	-	390,994	-	-	14,459	-	14,459
Use Not Reported	10,964	-	-	1,317,722	1,328,686	1,110	-	-	319,042	320,152
District 5. Michigan										
Total	13,711	-	-	28,923	42,634	-	-	-	-	-
Railroad Fuel	-	-	-	-	-	-	-	-	-	-
Industrial	1,279	-	-	-	1,279	-	-	-	-	-
Retail Dealers	12,432	-	-	-	12,432	-	-	-	-	-
Use Not Reported	-	-	-	28,923	28,923	-	-	-	-	-
District 6. Panhandle										
Total	185,172	-	152,215	165,605	502,992	147,143	-	25,136	31,947	204,226
Railroad Fuel	33,407	-	71,351	-	104,758	15,192	-	2,099	-	17,291
Industrial	96,462	-	3,838	-	100,300	78,532	-	-	-	78,532
Retail Dealers	55,303	-	-	-	55,303	53,419	-	-	-	53,419
Storage	-	-	53,621	-	53,621	-	-	22,971	-	22,971
Bunker and Vessel Fuel	-	-	23,405	-	23,405	-	-	66	-	66
Export 6/	-	-	-	-	-	-	-	-	-	-
Use Not Reported	-	-	-	165,605	165,605	-	-	-	31,947	31,947
District 7. Southern No. 1										
Total	8,002,205	126,534	176,599	115,019	8,420,357	3,380,001	118,054	210,268	38,545	3,746,868
Railroad Fuel	21,761	-	-	-	21,761	18,490	-	-	-	18,490
Industrial	97,857	4,300	7,485	-	109,642	317,150	529	29,469	-	347,148
Retail Dealers	7,815,027	620	15,591	-	7,831,238	3,014,535	114,577	3,845	-	3,132,957
Byproduct and Water Gas 5/	1,470	3,144	10,097	-	14,711	24,791	-	10,788	-	35,579
Smithing	-	-	-	-	-	-	-	-	-	-
Storage	-	-	143,426	-	143,426	-	-	166,166	-	166,166
Bunker and Vessel Fuel	-	35,076	-	-	35,076	-	2,616	-	-	2,616
Export 6/	-	83,329	-	-	83,329	-	332	-	-	332
Use Not Reported	66,090	65	-	115,019	181,174	5,035	-	-	38,545	43,580
District 8. Southern No. 2										
Total	19,962,543	391,375	2,407,999	637,137	23,399,054	6,638,158	143,945	652,649	60,764	7,495,516
Railroad Fuel	930,199	21,675	88,069	-	1,039,943	261,774	2,401	-	-	264,175
Industrial	2,826,559	85,080	398,795	-	3,310,434	1,714,487	5,515	61,400	-	1,781,402
Retail Dealers	15,335,451	2,492	231,787	-	15,569,730	4,387,829	5,694	95,135	-	4,488,658
Byproduct and Water Gas 5/	698,058	155,957	858,626	-	1,712,641	129,190	88,426	63,386	-	281,002
Smithing	-	-	-	-	-	-	-	-	-	-
Storage	-	-	526,917	-	526,917	-	-	428,602	-	428,602
Bunker and Vessel Fuel	-	15,959	303,805	-	319,764	-	5,077	4,126	-	9,203
Export 6/	-	98,878	-	-	98,878	-	36,832	-	-	36,832
Use Not Reported	172,276	11,334	-	637,137	820,747	144,878	-	-	60,764	205,642

ISTRICT OF ORIGIN, USE, CONSOLIDATED SIZE GROUP
CARGO MANIFESTS, INVOICES, AND SUMMARY REPORTS
ds)

M/R Mod. M/R Dom. M/R Screened and Altered M/R and Minus Resultant with Top Size over 2" (3)					All Minus Resultant and Dedusted Screenings with Top Size over 3/4" and not Exceeding 2" (4)				
All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total	All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total
	Tidewater	Lake				Tidewater	Lake		
18,017,657	13,590,298	1,263,415	1,192,915	34,064,285	2,137,490	356,140	156,924	55,397	2,705,951
5,057,893	-	65	-	5,057,958	39,282	-	-	-	39,282
9,560,942	8,273,272	842,857	-	18,677,071	1,046,567	347,113	39,318	-	1,432,998
729,605	328,744	4,013	-	1,062,362	64,192	7,614	-	-	71,806
2,013,255	5,476	-	-	2,018,731	987,449	1,086	-	-	988,535
-	-	-	-	-	-	-	-	-	-
-	-	414,101	-	414,101	-	-	116,382	-	116,382
-	190,920	67	-	190,987	-	-	1,224	-	1,224
-	4,791,886	-	-	4,791,886	-	327	-	-	327
655,962	-	2,312	1,192,915	1,851,189	-	-	-	55,397	55,397
44,463,648	2,657,480	4,052,479	1,532,325	52,705,932	3,654,374	38,559	554,768	682,566	4,930,267
8,897,083	-	197,789	-	9,094,872	439,888	-	-	-	439,888
7,323,600	134,985	2,025,188	-	9,483,773	1,947,874	27,376	124,528	-	2,099,778
122,896	16,608	2,689	-	142,193	138,194	746	15,382	-	154,322
26,653,008	2,919	1,424,583	-	28,080,510	1,074,281	8,503	196,234	-	1,279,018
-	-	-	-	-	-	-	-	-	-
-	-	397,841	-	397,841	-	-	155,174	-	155,174
-	19,748	4,389	-	24,137	-	-	63,450	-	63,450
-	2,483,220	-	-	2,483,220	-	1,934	-	-	1,934
1,467,061	-	-	1,532,325	2,999,386	54,137	-	-	682,566	736,703
16,945,615	2,580,645	1,273,763	129,173	20,929,196	2,122,859	109,511	428,663	-	2,661,033
8,279,060	-	124,324	-	8,403,384	108,734	-	-	-	108,734
4,567,701	1,052,134	580,335	-	6,200,170	1,790,748	99,464	223,913	-	2,114,125
299,815	40,158	-	-	339,973	179,151	3,894	-	-	183,045
3,656,910	164,145	248,196	-	4,069,251	10,140	5,200	8,061	-	23,401
-	-	-	-	-	-	-	-	-	-
-	-	319,885	-	319,885	-	-	193,003	-	193,003
-	49,560	1,023	-	50,583	-	201	3,686	-	3,887
-	1,274,597	-	-	1,274,597	-	752	-	-	752
142,129	51	-	129,173	271,353	34,086	-	-	-	34,086
11,334,542	-	1,457,920	2,105,911	14,898,373	3,210,095	-	230,898	824,627	4,265,620
7,881,760	-	1,221,732	-	9,103,492	239,385	-	-	-	239,385
3,236,447	-	116,385	-	3,352,832	2,810,105	-	139,128	-	2,949,233
57,884	-	182	-	58,066	134,151	-	-	-	134,151
-	-	10,061	-	10,061	8,910	-	1,695	-	10,605
-	-	104,763	-	104,763	-	-	88,774	-	88,774
-	-	4,797	-	4,797	-	-	1,301	-	1,301
158,451	-	-	2,105,911	2,264,362	17,544	-	-	824,627	842,171
894	-	-	-	894	14,935	-	-	10,816	25,751
-	-	-	-	-	-	-	-	-	-
894	-		-	894	13,604	-	-	-	13,604
-	-	-	-		1,331	-	-	-	1,331
-	-	-	-	-	-	-	-	10,816	10,816
2,355,324	25,313	120,985	369,714	2,871,336	209,970	-	8,570	28,828	247,368
1,012,990	-	67,175	-	1,080,165	959	-	-	-	959
1,330,397	-	52,958	-	1,383,355	200,817	-	580	-	201,397
939	-	-	-	939	8,194	-	-	-	8,194
-	-	718	-	718	-	-	5,650	-	5,650
-	-	134	-	134	-	-	2,340	-	2,340
-	25,313	-	-	25,313	-	-	-	-	-
10,998	-	-	369,714	380,712	-	-	-	28,828	28,828
8,366,464	3,503,072	2,973,793	14,917	14,858,246	2,101,476	782,045	99,082	119	2,982,722
549,377	3,159	-	-	552,536	50,775	-	-	-	50,775
1,907,688	446,677	387,868	-	2,742,233	1,674,467	666,683	28,424	-	2,369,574
2,452,430	170,760	-	-	2,623,190	261,895	92,170	-	-	354,065
3,251,554	1,130,861	2,553,852	-	6,936,267	103,891	724	70,213	-	174,828
-	-	-	-	-	-	-	-	-	-
-	-	32,073	-	32,073	-	-	445	-	445
-	285,074	-	-	285,074	-	5,486	-	-	5,486
-	1,429,605	-	-	1,429,605	-	16,982		-	16,982
205,415	36,936	-	14,917	257,268	10,448	-		119	10,567
24,214,562	4,615,998	8,194,252	227,461	37,252,273	16,126,370	370,211	3,268,822	24,147	19,789,550
9,499,281	290,460	240,082	-	10,029,823	1,658,185	28,026	41,866	-	1,728,077
6,075,103	128,737	1,857,030	-	8,060,870	10,955,014	49,344	2,090,362	-	13,094,720
349,662	387	12,940	-	362,989	1,963,472	641	48,431	-	2,012,544
7,222,049	1,906,133	5,914,750	-	15,042,932	1,435,361	271,120	752,516	-	2,458,997
-	-	-	-	-	-	-	-	-	-
502	-	152,490	-	152,992	-	-	255,185	-	255,185
-	90,506	16,960	-	107,466	-	668	80,462	-	81,130
-	2,153,079	-	-	2,153,079	-	20,412	-	-	20,412
1,067,965	46,696	-	227,461	1,342,122	114,338	-	-	24,147	138,485

SHIPMENTS OF BITUMINOUS COAL AND LIGNIT
AND METHOD OF MOVEMENT AS REPORTED ON

TABLE 4

Size Group and Movement / District and Use	All Minus Resultant and Dedusted Screenings With Top Size not exceeding 3/4" (5)					Total Colu (	
	All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total	All-Rail River and Ex-River 1/	Interpo
		Tidewater	Lake				Tidewater
District 1. Eastern Pennsylvania							
Total	3,785,185	1,633,943	625,680	94,013	6,138,821	26,845,870	15,874,252
Railroad Fuel	155,382	-	-	-	155,382	5,539,429	-
Industrial	3,247,034	1,612,719	451,253	-	5,311,006	15,296,634	10,257,801
Retail Dealers	44,272	6,812	-	-	51,084	1,955,670	530,290
Byproduct and Water Gas 5/	338,391	-	105,202	-	443,593	3,392,605	6,562
Smithing	-	-	-	-	-	-	-
Storage	-	-	69,179	-	69,179	-	-
Bunker and Vessel Fuel	-	106	46	-	152	-	267,264
Export 6/	-	14,306	-	-	14,306	-	4,812,335
Use Not Reported	106	-	-	94,013	94,119	661,532	-
District 2. Western Pennsylvania							
Total	1,252,478	30,772	134,899	153,394	1,571,543	55,163,834	2,929,874
Railroad Fuel	53,163	-	337	-	53,500	10,635,270	-
Industrial	718,420	13,160	96,444	-	828,024	12,220,079	276,580
Retail Dealers	7,831	1,529	-	-	9,360	2,048,758	38,038
Byproduct and Water Gas 5/	467,217	-	1,743	-	468,960	28,675,038	11,422
Smithing	-	-	-	-	-	-	-
Storage	-	-	33,715	-	33,715	288	-
Bunker and Vessel Fuel	-	50	2,660	-	2,710	-	31,950
Export 6/	-	16,033	-	-	16,033	-	2,571,884
Use Not Reported	5,847	-	-	153,394	159,241	1,584,401	-
District 3. Northern West Virginia 7/							
Total	2,854,290	519,756	444,028	1,017	3,819,091	28,787,560	3,530,883
Railroad Fuel	76,683	-	409	-	77,092	10,821,644	-
Industrial	2,485,306	434,699	346,177	-	3,266,182	10,971,030	1,591,906
Retail Dealers	44,436	11,761	-	-	56,197	2,504,403	119,297
Byproduct and Water Gas 5/	247,865	72,961	7,038	-	327,864	4,297,903	257,311
Smithing	-	-	-	-	-	-	-
Storage	-	-	88,875	-	88,875	-	-
Bunker and Vessel Fuel	-	243	1,529	-	1,772	-	121,512
Export 6/	-	92	-	-	92	-	1,438,371
Use Not Reported	-	-	-	1,017	1,017	192,580	2,486
District 4. Ohio							
Total	1,447,957	-	74,344	115,764	1,638,065	20,593,661	-
Railroad Fuel	29,005	-	-	-	29,005	9,475,279	-
Industrial	1,395,986	-	57,495	-	1,453,481	8,659,529	-
Retail Dealers	14,916	-	-	-	14,916	2,253,824	-
Byproduct and Water Gas	7,138	-	-	-	7,138	16,048	-
Storage	-	-	15,264	-	15,264	-	-
Bunker and Vessel Fuel	-	-	1,585	-	1,585	-	-
Use Not Reported	912	-	-	115,764	116,676	188,981	-
District 5. Michigan							
Total	-	-	-	-	-	29,540	-
Railroad Fuel	-	-	-	-	-	-	-
Industrial	-	-	-	-	-	15,777	-
Retail Dealers	-	-	-	-	-	13,763	-
Use Not Reported	-	-	-	-	-	-	-
District 6. Panhandle							
Total	207,259	-	10,549	7,960	225,768	3,104,868	25,313
Railroad Fuel	12,557	-	-	-	12,557	1,075,105	-
Industrial	188,889	-	4,910	-	193,799	1,895,097	-
Retail Dealers	1,245	-	-	-	1,245	119,100	-
Storage	-	-	5,639	-	5,639	-	-
Bunker and Vessel Fuel	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	25,313
Use Not Reported	4,568	-	-	7,960	12,528	15,566	-
District 7. Southern No. 1							
Total	6,764,196	3,011,227	2,643,740	4,857	12,424,020	28,614,342	7,540,932
Railroad Fuel	69,444	-	59	-	69,503	709,847	3,159
Industrial	2,916,053	1,993,227	454,086	-	5,363,366	6,913,215	3,111,416
Retail Dealers	261,535	20,105	-	-	281,640	13,805,422	398,232
Byproduct and Water Gas 5/	3,516,400	912,685	2,186,911	-	6,615,996	6,898,106	2,047,414
Smithing	-	-	-	-	-	-	-
Storage	-	-	2,684	-	2,684	-	-
Bunker and Vessel Fuel	-	60,606	-	-	60,606	-	388,858
Export 6/	-	24,552	-	-	24,552	-	1,554,800
Use Not Reported	764	52	-	4,857	5,673	287,752	37,053
District 8. Southern No. 2							
Total	4,794,286	173,848	342,274	25,341	5,335,749	71,735,919	5,695,377
Railroad Fuel	97,225	7,099	-	-	104,324	12,446,664	349,661
Industrial	4,186,218	56,506	222,025	-	4,464,749	25,757,381	325,182
Retail Dealers	26,604	961	360	-	27,925	22,063,018	10,175
Byproduct and Water Gas 5/	476,385	22,918	93,587	-	592,890	9,961,043	2,444,554
Smithing	-	-	-	-	-	-	-
Storage	-	-	2,131	-	2,131	502	-
Bunker and Vessel Fuel	-	181	24,171	-	24,352	-	112,391
Export 6/	-	86,183	-	-	86,183	-	2,395,384
Use Not Reported	7,854	-	-	25,341	33,195	1,507,311	58,030

NG THE CALENDAR YEAR 1946, BY DISTRICT OF ORIGIN, USE, CONSOLIDATED SIZE GROUP
S.F.A. NOS. 38, 48, AND 56 AND CARGO MANIFESTS, INVOICES, AND SUMMARY REPORTS
(In net tons of 2,000 pounds)

through 5			Size not Reported (7)					Other disposals, use and size not specified (8)	Coal used at mines 4/ (9)	Net change in inventory (10)	Grand total Columns 6 through 10 (11)
			All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total				
	Truck 3/	Total		Tidewater	Lake						
,970	1,541,495	46,682,587	102,478	184,933	899	-	288,310	106	517,812	-27,565	47,461,250
,711	-	5,564,140	66	-	-	-	66				
,982	-	26,990,417	24,594	6,732	849	-	32,175				
,571	-	2,491,531	392	26,525	-	-	26,917				
,202	-	3,504,369	-	-	-	-	-				
-	-	-	77,426	-	-	-	77,426				
,044	-	832,044	-	-	-	-	-				
,148	-	282,412	-	1,224	50	-	1,274				
-	-	4,812,335	-	150,452	-	-	150,452				
,312	1,541,495	2,205,339	-	-	-	-	-				
7,439	4,068,583	67,709,730	95,855	107,297	4,248	21,024	228,424	3,568	393,533	89,150	68,424,405
7,699	-	10,902,969	3,663	-	-	-	3,663				
4,833	-	14,821,492	9,569	-	-	-	9,569				
5,693	-	2,112,489	-	7,278	-	-	7,278				
5,454	-	30,451,914	-	-	3,525	-	3,525				
-	-	-	1,239	-	-	-	1,239				
9,624	-	899,912	-	-	-	-	-				
4,136	-	296,086	-	-	723	-	723				
-	-	2,571,884	-	100,019	-	-	100,019				
-	4,068,583	5,652,984	81,384	-	-	21,024	102,408				
9,511	213,989	35,761,943	260	110,973	-	-	111,233	62	85,568	37,489	35,996,295
6,609	-	11,238,253	-	-	-	-	-				
4,406	-	13,857,342	53	-	-	-	53				
-	-	2,623,700	-	18,712	-	-	18,712				
3,295	-	4,818,509	-	-	-	-	-				
-	-	-	207	-	-	-	207				
9,388	-	1,189,388	-	-	-	-	-				
5,813	-	187,325	-	685	-	-	685				
-	-	1,438,371	-	91,576	-	-	91,576				
-	213,989	409,055	-	-	-	-	-				
9,658	4,683,066	27,876,385	478,320	-	325	36,952	515,597	1,686	71,440	- 5,102	28,460,006
8,160	-	10,943,439	19,614	-	-	-	19,614				
6,137	-	9,015,666	450,852	-	-	-	450,852				
8,203	-	2,272,027	6,158	-	-	-	6,158				
1,756	-	27,804	1,012	-	-	-	1,012				
2,266	-	332,266	-	-	-	-	-				
3,136	-	413,136	-	-	325	-	325				
-	4,683,066	4,872,047	684	-	-	36,952	37,636				
-	39,739	69,279	-	-	-	2,643	2,643	-	8,282	- 232	79,972
-	-	-	-	-	-	-	-				
-	-	15,777	-	-	-	-	-				
-	-	13,763	-	-	-	-	-				
-	39,739	39,739	-	-	-	2,643	2,643				
7,455	604,054	4,051,690	-	-	2,458	8,842	11,300	-	5,157	- 227	4,067,920
0,625	-	1,215,730	-	-	-	-	-				
2,286	-	1,957,383	-	-	-	-	-				
-	-	119,100	-	-	-	-	-				
8,599	-	88,599	-	-	2,458	-	2,458				
5,945	-	25,945	-	-	-	-	-				
-	-	25,313	-	-	-	-	-				
-	604,054	619,620	-	-	-	8,842	8,842				
3,482	173,457	42,432,213	225,308	37,445	1,087	149	263,989	2,022	779,045	68,721	43,545,990
59	-	713,065	14,161	-	-	-	14,161				
7,332	-	10,931,963	181,165	-	-	-	181,165				
9,436	-	14,223,090	474	-	-	-	474				
1,861	-	13,777,381	417	1,658	-	-	2,075				
-	-	-	15,369	-	-	-	15,369				
,794	-	344,794	-	-	1,087	-	1,087				
-	-	388,858	-	-	-	-	-				
-	-	1,554,800	-	35,787	-	-	35,787				
-	173,457	498,262	13,722	-	-	149	13,871				
5,996	974,850	93,272,142	171,813	87,462	3,665	10,685	273,625	12,629	778,715	105,316	94,442,427
70,017	-	13,166,342	24,146	-	-	-	24,146				
29,612	-	30,712,175	116,902	717	-	-	117,619				
88,653	-	22,461,846	12,965	-	1,741	-	14,706				
82,865	-	20,088,462	-	-	10	-	10				
-	-	-	2,473	-	-	-	2,473				
65,325	-	1,365,827	-	-	1,703	-	1,703				
29.524	-	541,915	-	-	211	-	211				
-	-	2,395,384	-	86,745	-	-	86,745				
-	974,850	2,540,191	15,327	-	-	10,685	26,012				

TABLE 4

SHIPMENTS OF BITUMINOUS COAL AND LIGNITE DURING THE CALENDAR YEAR 1946 (Continued)

Size Group and Movement	All Lump Coal and All Double Screened Coal with Top Size Over 2" (1)					All Double Screened Coal with Top Size not exceeding 2" (2)				
	All-Rail River and Ex-river 1/	Interport 2/		Truck 3/	Total	All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total
District and Use		Tidewater	Lake				Tidewater	Lake		
District 9. West Kentucky										
Total	3,655,783	74,539	123,829	494,856	4,349,007	1,116,328	8,171	7,961	35,609	1,168,069
Railroad Fuel	1,104,593	-	114,212	-	1,218,805	84,996	-	-	-	84,996
Industrial	712,568	-	6,549	-	719,117	276,148	-	4,801	-	280,949
Retail Dealers	1,837,413	-	-	-	1,837,413	747,544	-	-	-	747,544
Storage	-	-	3,068	-	3,068	512	-	3,160	-	3,672
Export 6/	-	74,539	-	-	74,539	-	8,171	-	-	8,171
Use Not Reported	1,209	-	-	494,856	496,065	7,128	-	-	35,609	42,737
District 10. Illinois										
Total	16,264,495	231,700	55,276	2,624,287	19,175,758	2,712,712	38,885	2,673	717,137	3,471,407
Railroad Fuel	8,355,817	-	24,314	-	8,380,131	288,800	-	-	-	288,800
Industrial	1,343,385	-	6,862	-	1,350,247	979,299	-	661	-	979,960
Retail Dealers	6,266,490	-	5,457	-	6,271,947	1,278,884	-	2,012	-	1,280,896
Byproduct and Water Gas	216,174	-	-	-	216,174	165,025	-	-	-	165,025
Bunker and Vessel Fuel	-	-	1,191	-	1,191	-	-	-	-	-
Export 6/	-	231,700	-	-	231,700	-	38,885	-	-	38,885
Storage	-	-	17,452	-	17,452	-	-	-	-	-
Use Not Reported	82,629	-	-	2,624,287	2,706,916	704	-	-	717,137	717,841
District 11. Indiana										
Total	8,025,682	-	18,641	707,648	8,751,971	1,930,750	-	3,844	189,355	2,123,949
Railroad Fuel	5,312,027	-	2,508	-	5,314,535	97,697	-	129	-	97,826
Industrial	912,443	-	-	-	912,443	1,097,123	-	-	-	1,097,123
Retail Dealers	1,719,413	-	-	-	1,719,413	732,059	-	-	-	732,059
Byproduct and Water Gas	74,023	-	-	-	74,023	567	-	-	-	567
Storage	-	-	15,490	-	15,490	-	-	3,715	-	3,715
Bunker and Vessel Fuel	-	-	643	-	643	-	-	-	-	-
Use Not Reported	7,776	-	-	707,648	715,424	3,304	-	-	189,355	192,659
District 12. Iowa										
Total	203,947	-	-	178,901	382,848	43,897	-	-	21,685	65,582
Railroad Fuel	125,784	-	-	-	125,784	6,080	-	-	-	6,080
Industrial	14,756	-	-	-	14,756	10,670	-	-	-	10,670
Retail Dealers	63,407	-	-	-	63,407	5,454	-	-	-	5,454
Byproduct and Water Gas	-	-	-	-	-	-	-	-	-	-
Use Not Reported	-	-	-	178,901	178,901	21,693	-	-	21,685	43,378
District 13. Southeastern										
Total	1,231,962	26,536	-	214,268	1,472,766	346,766	4,818	-	11,881	363,465
Railroad Fuel	9,007	-	-	-	9,007	38	-	-	-	38
Industrial	311,420	-	-	-	311,420	105,863	-	-	-	105,863
Retail Dealers	900,160	-	-	-	900,160	240,817	-	-	-	240,817
Byproduct and Water Gas 5/	11,284	-	-	-	11,284	48	-	-	-	48
Smithing	-	-	-	-	-	-	-	-	-	-
Bunker and Vessel Fuel	-	-	-	-	-	-	-	-	-	-
Export 6/	-	26,536	-	-	26,536	-	4,818	-	-	4,818
Use Not Reported	91	-	-	214,268	214,359	-	-	-	11,881	11,881
District 14. Arkansas-Oklahoma										
Total	720,317	296	-	3,375	723,988	27,392	-	-	163	27,555
Railroad Fuel	8,052	-	-	-	8,052	585	-	-	-	585
Industrial	7,685	-	-	-	7,685	5,764	-	-	-	5,764
Retail Dealers	662,870	-	-	-	662,870	19,442	-	-	-	19,442
Byproduct and Water Gas	411	-	-	-	411	376	-	-	-	376
Export 6/	-	296	-	-	296	-	-	-	-	-
Use Not Reported	41,299	-	-	3,375	44,674	1,225	-	-	163	1,388
District 15. Southwestern										
Total	2,732,496	258,172	-	386,692	3,377,360	517,875	426	-	53,276	571,577
Railroad Fuel	1,100,953	-	-	-	1,100,953	24,720	-	-	-	24,720
Industrial	178,876	-	-	-	178,876	69,795	-	-	-	69,795
Retail Dealers	1,430,677	-	-	-	1,430,677	422,023	-	-	-	422,023
Byproduct and Water Gas	-	-	-	-	-	-	-	-	-	-
Export 6/	-	258,172	-	-	258,172	-	426	-	-	426
Use Not Reported	21,990	-	-	386,692	408,682	1,337	-	-	53,276	54,613
District 16. Northern Colorado										
Total	317,877	-	-	316,078	633,955	65,224	-	-	125,246	190,470
Railroad Fuel	12,053	-	-	-	12,053	-	-	-	-	-
Industrial	30,683	-	-	-	30,683	1,600	-	-	-	1,600
Retail Dealers	275,141	-	-	-	275,141	63,624	-	-	-	63,624
Use Not Reported	-	-	-	316,078	316,078	-	-	-	125,246	125,246
District 17. Southern Colorado										
Total	1,079,889	30,331	-	190,852	1,301,072	70,765	4,773	-	24,485	100,023
Railroad Fuel	44,853	-	-	-	44,853	8,300	-	-	-	8,300
Industrial	50,356	-	-	-	50,356	9,964	-	-	-	9,964
Retail Dealers	977,527	-	-	-	977,527	49,349	-	-	-	49,349
Byproduct and Water Gas 5/	4,323	-	-	-	4,323	3,152	-	-	-	3,152
Smithing	-	-	-	-	-	-	-	-	-	-
Export 6/	-	30,331	-	-	30,331	-	4,773	-	-	4,773
Use Not Reported	2,830	-	-	190,852	193,682	-	-	-	24,485	24,485
District 18. New Mexico										
Total	69,666	-	-	15,115	84,781	12,337	-	-	5,198	17,535
Railroad Fuel	25,936	-	-	-	25,936	-	-	-	-	-
Industrial	6,140	-	-	-	6,140	6,183	-	-	-	6,183
Retail Dealers	37,590	-	-	-	37,590	6,154	-	-	-	6,154
Use Not Reported	-	-	-	15,115	15,115	-	-	-	5,198	5,198

M/R Mod. M/R Dom. M/R Screened and Altered M/R and Minus Resultant with Top Size Over 2" (3)					All Minus Resultant and Dedusted Screenings with Top Size Over 3/4" and not exceeding 2" (4)				
All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total	All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total
	Tidewater	Lake				Tidewater	Lake		
5,010,757	1,319,463	534,322	40,482	6,905,024	2,905,072	55	2,656	69,432	2,977,215
4,430,286	-	487,013	-	4,917,299	191,421	-	-	-	191,421
452,515	-	47,309	-	499,824	2,047,520	-	-	-	2,047,520
55,851	-	-	-	55,851	662,697	-	-	-	662,697
-	-	-	-	-	-	-	2,656	-	2,656
-	1,319,463	-	-	1,319,463	-	55	-	-	55
72,105	-	-	40,482	112,587	3,434	-	-	69,432	72,866
13,582,679	3,214	70,505	73,057	13,729,455	19,433,465	-	46,020	1,899,583	21,379,068
8,291,783	-	12,105	-	8,303,888	1,643,094	-	-	-	1,643,094
5,110,043	-	58,338	-	5,168,381	13,485,047	-	40,954	-	13,526,001
165,656	-	-	-	165,656	4,275,045	-	5,013	-	4,280,058
229	-	-	-	229	1,289	-	-	-	1,289
-	-	62	-	62	-	-	53	-	53
-	3,214	-	-	3,214	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
14,968	-	-	73,057	88,025	28,990	-	-	1,899,583	1,928,573
4,661,695	-	383	131,026	4,793,104	3,520,700	-	-	255,198	3,775,898
1,306,709	-	239	-	1,306,948	160,661	-	-	-	160,661
3,351,716	-	-	-	3,351,716	2,914,070	-	-	-	2,914,070
1,603	-	-	-	1,603	419,226	-	-	-	419,226
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	144	-	144	-	-	-	-	-
1,667	-	-	131,026	132,693	26,743	-	-	255,198	281,941
1,553	-	-	24,788	26,341	510,866	-	-	113,276	624,142
-	-	-	-	-	2,039	-	-	-	2,039
413	-	-	-	413	484,007	-	-	-	484,007
1,140	-	-	-	1,140	24,608	-	-	-	24,608
-	-	-	-	-	-	-	-	-	-
-	-	-	24,788	24,788	212	-	-	113,276	113,488
5,128,484	1,606,204	-	128,967	6,863,655	6,744,979	171,963	-	17,675	6,934,617
3,289,463	-	-	-	3,289,463	52,641	-	-	-	52,641
707,900	-	-	-	707,900	1,209,048	-	-	-	1,209,048
11,953	-	-	-	11,953	81,289	-	-	-	81,289
1,064,360	-	-	-	1,064,360	5,401,944	-	-	-	5,401,944
-	-	-	-	-	-	-	-	-	-
-	17,515	-	-	17,515	-	33,292	-	-	33,292
-	1,588,689	-	-	1,588,689	-	138,671	-	-	138,671
54,808	-	-	128,967	183,775	57	-	-	17,675	17,732
264,498	33,817	-	3,235	301,550	164,367	-	-	12	164,379
67,313	-	-	-	67,313	8,319	-	-	-	8,319
113,626	-	-	-	113,626	69,968	-	-	-	69,968
47,050	-	-	-	47,050	53,589	-	-	-	53,589
7,317	-	-	-	7,317	10,515	-	-	-	10,515
-	33,817	-	-	33,817	-	-	-	-	-
29,192	-	-	3,235	32,427	21,976	-	-	12	21,988
/1,023,010	718,253	-	8/ 87,771	8/1,829,034	2,300,281	-	-	124,128	2,424,409
/ 693,315	-	-	-	8/ 693,315	58,417	-	-	-	58,417
/ 188,956	-	-	-	8/ 188,956	1,970,077	-	-	-	1,970,077
104,242	-	-	-	104,242	270,255	-	-	-	270,255
-	-	-	-	-	-	-	-	-	-
-	718,253	-	-	718,253	-	-	-	-	-
36,497	-	-	8/ 87,771	8/ 124,268	1,532	-	-	124,128	125,660
10,931	-	-	9,756	20,687	586,699	-	-	179,390	766,089
-	-	-	-	-	7,697	-	-	-	7,697
10,869	-	-	-	10,869	430,809	-	-	-	430,809
62	-	-	-	62	148,193	-	-	-	148,193
-	-	-	9,756	9,756	-	-	-	179,390	179,390
1,252,968	110,370	-	4,786	1,368,124	1,512,619	-	-	71,945	1,584,564
1,088,017	-	-	-	1,088,017	221,030	-	-	-	221,030
24,303	-	-	-	24,303	237,324	-	-	-	237,324
2,464	-	-	-	2,464	236,876	-	-	-	236,876
138,184	-	-	-	138,184	816,940	-	-	-	816,940
-	-	-	-	-	-	-	-	-	-
-	110,370	-	-	110,370	-	-	-	-	-
-	-	-	4,786	4,786	449	-	-	71,945	72,394
2,266	-	-	1,989	4,[illegible]55	54,886	-	-	13	54,899
-	-	-	-	-	29,700	-	-	-	29,700
463	-	-	-	463	22,877	-	-	-	22,877
1,803	-	-	-	1,803	2,309	-	-	-	2,309
-	-	-	1,989	1,989	-	-	-	13	13

TABLE 4

SHIPMENTS OF BITUMINOUS COAL AND LIGNITE DURING THE CALENDAR YEAR 1946 (Continued)

Size Group and Movement / District and Use	All Minus Resultant and Dedusted Screenings with Top Size not exceeding 3/4" (5)					Total Co	
	All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total	All-Rail River and Ex-River 1/	Interpor
		Tidewater	Lake				Tidewater
District 9. West Kentucky							
Total	427,628	-	-	16,292	443,920	13,115,568	1,402,228
Railroad Fuel	54,606	-	-	-	54,606	5,865,902	-
Industrial	344,787	-	-	-	344,787	3,833,538	-
Retail Dealers	9,091	-	-	-	9,091	3,312,596	-
Storage	-	-	-	-	-	512	-
Export 6/	-	-	-	-	-	-	1,402,228
Use Not Reported	19,144	-	-	16,292	35,436	103,020	-
District 10. Illinois							
Total	2,966,474	-	390	186,990	3,153,854	54,959,825	273,799
Railroad Fuel	76,692	-	-	-	76,692	18,656,186	-
Industrial	2,356,561	-	390	-	2,356,951	23,274,335	-
Retail Dealers	514,237	-	-	-	514,237	12,500,312	-
Byproduct and Water Gas	-	-	-	-	-	382,717	-
Bunker and Vessel Fuel	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	273,799
Storage	-	-	-	-	-	-	-
Use Not Reported	18,984	-	-	186,990	205,974	146,275	-
District 11. Indiana							
Total	977,639	-	-	26,789	1,004,428	19,116,466	-
Railroad Fuel	48	-	-	-	48	6,877,142	-
Industrial	961,698	-	-	-	961,698	9,237,050	-
Retail Dealers	13,493	-	-	-	13,493	2,885,794	-
Byproduct and Water Gas	-	-	-	-	-	74,590	-
Storage	-	-	-	-	-	-	-
Bunker and Vessel Fuel	-	-	-	-	-	-	-
Use Not Reported	2,400	-	-	26,789	29,189	41,890	-
District 12. Iowa							
Total	-	-	-	576	576	760,263	-
Railroad Fuel	-	-	-	-	-	133,903	-
Industrial	-	-	-	-	-	509,846	-
Retail Dealers	-	-	-	-	-	94,609	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Use Not Reported	-	-	-	576	576	21,905	-
District 13. Southeastern							
Total	45,491	-	-	6,612	52,103	13,497,682	1,809,521
Railroad Fuel	-	-	-	-	-	3,351,149	-
Industrial	37,585	-	-	-	37,585	2,371,816	-
Retail Dealers	7,906	-	-	-	7,906	1,242,125	-
Byproduct and Water Gas 5/	-	-	-	-	-	6,477,636	-
Smithing	-	-	-	-	-	-	-
Bunker and Vessel Fuel	-	-	-	-	-	-	50,807
Export 6/	-	-	-	-	-	-	1,758,714
Use Not Reported	-	-	-	6,612	6,612	54,956	-
District 14. Arkansas-Oklahoma							
Total	80,856	-	-	-	80,856	1,257,430	34,113
Railroad Fuel	2,863	-	-	-	2,863	87,132	-
Industrial	18,219	-	-	-	18,219	215,262	-
Retail Dealers	50,195	-	-	-	50,195	833,146	-
Byproduct and Water Gas	-	-	-	-	-	18,619	-
Export 6/	-	-	-	-	-	-	34,113
Use Not Reported	9,579	-	-	-	9,579	103,271	-
District 15. Southwestern							
Total	1,484	-	-	12,944	14,428	6,575,146	976,851
Railroad Fuel	-	-	-	-	-	1,877,405	-
Industrial	1,484	-	-	-	1,484	2,409,188	-
Retail Dealers	-	-	-	-	-	2,227,197	-
Byproduct and Water Gas	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	976,851
Use Not Reported	-	-	-	12,944	12,944	61,356	-
District 16. Northern Colorado							
Total	122,792	-	-	12,180	134,972	1,103,523	-
Railroad Fuel	-	-	-	-	-	19,750	-
Industrial	110,572	-	-	-	110,572	584,533	-
Retail Dealers	12,220	-	-	-	12,220	499,240	-
Use Not Reported	-	-	-	12,180	12,180	-	-
District 17. Southern Colorado							
Total	81,548	-	-	3,812	85,360	3,997,789	145,474
Railroad Fuel	12,797	-	-	-	12,797	1,374,997	-
Industrial	32,955	-	-	-	32,955	354,902	-
Retail Dealers	1,395	-	-	-	1,395	1,267,611	-
Byproduct and Water Gas 5/	34,401	-	-	-	34,401	997,000	-
Smithing	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	145,474
Use Not Reported	-	-	-	3,812	3,812	3,279	-
District 18. New Mexico							
Total	9,205	-	-	3	9,208	148,360	-
Railroad Fuel	8,334	-	-	-	8,334	63,970	-
Industrial	871	-	-	-	871	36,534	-
Retail Dealers	-	-	-	-	-	47,856	-
Use Not Reported	-	-	-	3	3	-	-

	1 through 5 6)		Size not reported (7)					Other disposals, use and size not specified (8)	Coal used at mines 4/ (9)	Net change in inventory (10)	Grand total Columns 6 through 10 (11)
				Interport 2/							
	Truck 3/	Total	All-Rail River and Ex-River 1/	Tidewater	Lake	Truck 3/	Total				
68	656,671	15,843,235	-	-	7,792	180	7,972	-	61,731	617	15,913,555
25	-	6,467,127	-	-	7,792	-	7,792				
59	-	3,892,197	-	-	-	-	-				
	-	3,312,596	-	-	-	-	-				
84	-	9,396	-	-	-	-	-				
	-	1,402,228	-	-	-	-	-				
	656,671	759,691	-	-	-	180	180				
64	5,501,054	60,909,542	5,934	9,731	-	19,753	35,418	1,536	948,786	4,669	61,899,951
19	-	18,692,605	-	-	-	-	-				
205	-	23,381,540	2,404	-	-	-	2,404				
82	-	12,512,794	46	-	-	-	46				
	-	382,717	505	-	-	-	505				
306	-	1,306	-	7,549	-	-	7,549				
	-	273,799	-	2,182	-	-	2,182				
52	-	17,452	-	-	-	-	-				
	5,501,054	5,647,329	2,979	-	-	19,753	22,732				
868	1,310,016	20,449,350	55,114	-	-	-	55,114	-	108,819	14,256	20,627,539
576	-	6,880,018	-	-	-	-	-				
	-	9,237,050	49,807	-	-	-	49,807				
	-	2,885,794	5,307	-	-	-	5,307				
	-	74,590	-	-	-	-	-				
205	-	19,205	-	-	-	-	-				
787	-	787	-	-	-	-	-				
	1,310,016	1,351,906	-	-	-	-	-				
	339,226	1,099,489	860	-	-	5,107	5,967	-	9,944	5,136	1,120,536
	-	133,903	-	-	-	-	-				
	-	509,846	46	-	-	-	46				
	-	94,609	814	-	-	-	814				
	-	-	-	-	-	-	-				
	339,226	361,131	-	-	-	5,107	5,107				
	379,403	15,686,606	24,347	4,836	-	542	29,725	-	154,527	1,154	15,872,012
	-	3,351,149	-	-	-	-	-				
	-	2,371,816	2,429	-	-	-	2,429				
	-	1,242,125	-	-	-	-	-				
	-	6,477,636	-	-	-	-	-				
	-	-	21,918	-	-	-	21,918				
	-	50,807	-	3,906	-	-	3,906				
	-	1,758,714	-	930	-	-	930				
	379,403	434,359	-	-	-	542	542				
-	6,785	1,298,328	275	-	-	-	275	-	6,631	2,138	1,307,372
-	-	87,132	-	-	-	-	-				
-	-	215,262	-	-	-	-	-				
-	-	833,146	275	-	-	-	275				
-	-	18,619	-	-	-	-	-				
-	-	34,113	-	-	-	-	-				
-	6,785	110,056	-	-	-	-	-				
-	664,811	8,216,808	3,868	-	-	1,566	5,434	56	19,517	-12,492	8,229,323
-	-	1,877,405	-	-	-	-	-				
-	-	2,409,188	876	-	-	-	876				
-	-	2,227,197	2,992	-	-	-	2,992				
-	-	-	-	-	-	-	-				
-	-	976,851	-	-	-	-	-				
-	664,811	726,167	-	-	-	1,566	1,566				
-	642,650	1,746,173	-	-	-	-	-	-	41,013	- 858	1,786,328
-	-	19,750	-	-	-	-	-				
-	-	584,533	-	-	-	-	-				
-	-	499,240	-	-	-	-	-				
-	642,650	642,650	-	-	-	-	-				
-	295,880	4,439,143	13,259	-	-	441	13,700	-	88,571	6,406	4,547,820
-	-	1,374,997	12,020	-	-	-	12,020				
-	-	354,902	657	-	-	-	657				
-	-	1,267,611	105	-	-	-	105				
-	-	997,000	-	-	-	-	-				
-	-	-	477	-	-	-	477				
-	-	145,474	-	-	-	-	-				
-	295,880	299,159	-	-	-	441	441				
-	22,318	170,678	-	-	-	-	-	-	7,713	- 3,556	174,835
-	-	63,970	-	-	-	-	-				
-	-	36,534	-	-	-	-	-				
-	-	47,856	-	-	-	-	-				
-	22,318	22,318	-	-	-	-	-				

TABLE 4

SHIPMENTS OF BITUMINOUS COAL AND LIGNITE DURING THE CALENDAR YEAR 1946 (Continued)

Size Group and Movement	All Lump Coal and All Double Screened Coal with Top Size Over 2" (1)					All Double Screened Coal with Top Size not Exceeding 2" (2)				
	All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total	All-Rail River and Ex-River 1/	Interport 2/		Truck 3/	Total
District and Use		Tidewater	Lake				Tidewater	Lake		
District 19. Wyoming										
Total	1,039,638	-	-	61,685	1,101,323	174,359	-	-	8,145	182,504
Railroad Fuel	391,185	-	-	-	391,185	34,967	-	-	-	34,967
Industrial	118,893	-	-	-	118,893	51,052	-	-	-	51,052
Retail Dealers	475,815	-	-	-	475,815	85,251	-	-	-	85,251
Smithing	-	-	-	-	-	-	-	-	-	-
Bunker and Vessel Fuel	-	-	-	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	-	-	-	-
Use Not Reported	53,745	-	-	61,685	115,430	3,089	-	-	8,145	11,234
District 20. Utah										
Total	1,649,099	36,779	-	92,671	1,778,549	181,588	-	-	1,258	182,846
Railroad Fuel	40,174	-	-	-	40,174	13,924	-	-	-	13,924
Industrial	119,567	-	-	-	119,567	20,047	-	-	-	20,047
Retail Dealers	1,424,110	-	-	-	1,424,110	119,107	-	-	-	119,107
Byproduct and Water Gas 5/	2,452	-	-	-	2,452	28,510	-	-	-	28,510
Bunker and Vessel Fuel	-	67	-	-	67	-	-	-	-	-
Export 6/	-	36,712	-	-	36,712	-	-	-	-	-
Use Not Reported	62,796	-	-	92,671	155,467	-	-	-	1,258	1,258
District 21. North and South Dakota										
Total	840,936	-	-	76,207	917,143	210,599	-	-	10,815	221,414
Railroad Fuel	16,505	-	-	-	16,505	1,342	-	-	-	1,342
Industrial	34,554	-	-	-	34,554	39,237	-	-	-	39,237
Retail Dealers	789,877	-	-	-	789,877	170,020	-	-	-	170,020
Use Not Reported	-	-	-	76,207	76,207	-	-	-	10,815	10,815
District 22. Montana										
Total	288,667	-	-	16,460	305,127	84,389	-	-	3,202	87,591
Railroad Fuel	25,496	-	-	-	25,496	2,341	-	-	-	2,341
Industrial	21,920	-	-	-	21,920	10,001	-	-	-	10,001
Retail Dealers	241,174	-	-	-	241,174	72,006	-	-	-	72,006
Use Not Reported	77	-	-	16,460	16,537	41	-	-	3,202	3,243
District 23. Washington and Alaska										
Total	58,295	1,502	-	98,251	158,048	118,364	712	-	114,219	233,295
Railroad Fuel	1,376	-	-	-	1,376	39	-	-	-	39
Industrial	37,789	-	-	-	37,789	81,762	-	-	-	81,762
Retail Dealers	17,220	-	-	-	17,220	33,081	-	-	-	33,081
Byproduct and Water Gas	1,479	-	-	-	1,479	2,053	-	-	-	2,053
Storage	328	-	-	-	328	1,348	-	-	-	1,348
Bunker and Vessel Fuel	-	1,502	-	-	1,502	-	712	-	-	712
Export 6/	-	-	-	-	-	-	-	-	-	-
Use Not Reported	103	-	-	98,251	98,354	81	-	-	114,219	114,300
District not Reported										
Total	-	-	-	-	-	-	-	-	-	-
Retail Dealers	-	-	-	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	-	-	-	-
Total (excluding ex-dock movement)										
Total	77,123,543	1,622,404	4,520,599	9,227,861	92,494,407	27,162,219	693,049	2,416,288	2,269,130	32,540,686
Railroad Fuel	20,566,121	21,675	654,642	-	21,242,438	3,066,646	2,401	280,563	-	3,349,610
Industrial	9,724,744	168,194	507,397	-	10,400,335	9,089,667	58,595	380,800	-	9,529,062
Retail Dealers	44,811,411	67,321	266,161	-	45,144,893	13,951,596	325,821	114,867	-	14,392,284
Byproduct and Water Gas 5/	1,430,063	159,101	981,752	-	2,570,916	850,353	103,431	104,039	-	1,057,823
Smithing	-	-	-	-	-	-	-	-	-	-
Storage	616	-	1,185,847	-	1,186,463	1,860	-	1,455,107	-	1,456,967
Bunker and Vessel Fuel	-	180,579	924,800	-	1,105,379	-	40,328	80,912	-	121,240
Export 6/	-	1,014,135	-	-	1,014,135	-	160,038	-	-	160,038
Use Not Reported	590,588	11,399	-	9,227,861	9,829,848	202,097	2,435	-	2,269,130	2,473,662
Tidewater-ex-dock movement 11/										
Total	-	-	-	-	115,611	-	-	-	-	1,520,345
Railroad Fuel	-	-	-	-	548	-	-	-	-	-
Industrial	-	-	-	-	26,131	-	-	-	-	550,044
Retail Dealers	-	-	-	-	81,336	-	-	-	-	969,430
Byproduct and Water Gas	-	-	-	-	6,078	-	-	-	-	106
Smithing	-	-	-	-	80	-	-	-	-	-
Bunker and Vessel Fuel	-	-	-	-	1,438	-	-	-	-	765
Lake-ex-dock movement 11/										
Total	-	-	-	-	3,427,747	-	-	-	-	2,186,841
Railroad Fuel	-	-	-	-	27,912	-	-	-	-	21,943
Industrial	-	-	-	-	331,876	-	-	-	-	328,697
Retail Dealers	-	-	-	-	2,863,337	-	-	-	-	1,735,323
Byproduct and Water Gas	-	-	-	-	18,227	-	-	-	-	173
Smithing	-	-	-	-	57	-	-	-	-	463
Bunker and Vessel Fuel	-	-	-	-	186,338	-	-	-	-	100,242
GRAND TOTAL	-	-	-	-	96,037,765	-	-	-	-	36,247,872

1/ Includes shipments by truck to byproduct and beehive coke ovens away from the producing mine and for smithing use as follows: District 1, 413 tons; District 2, 852,431 tons; District 3, 25,392 tons; District 10, 338 tons; District 19, 23 tons; District 23, 1,790 tons.

2/ Includes shipments via tidewater to alongside consumers and via Great Lakes to alongside consumers and for consignment to Canada.

3/ Truck data not reported by use.

4/ Includes coal used to produce coal, coal used by mine employees and coal made into briquets or packaged fuel at the reporting mine.

5/ Includes shipments to beehive coke ovens.

6/ T

7/ I

8/ I

9/ I

10/ I

11/ D

M/R Mod. M/R Dom. M/R Screened and Altered M/R and Minus Resultant with Top Size Over 2" (3)					All Minus Resultant and Dedusted Screenings with Top Size Over 3/4" and not Exceeding 2" (4)				
ll-Rail iver and x-River 1/	Interport 2/ Tidewater	Interport 2/ Lake	Truck 3/	Total	All-Rail River and Ex-River 1/	Interport 2/ Tidewater	Interport 2/ Lake	Truck 3/	Total
4,597,787	28,013	-	868	4,626,668	1,492,429	-	-	6,005	1,498,434
4,436,420	-	-	-	4,436,420	298,552	-	-	-	298,552
136,570	-	-	-	136,570	945,675	-	-	-	945,675
7,838	-	-	-	7,838	210,289	-	-	-	210,289
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	28,013	-	-	28,013	-	-	-	-	-
16,959	-	-	868	17,827	37,913	-	-	6,005	43,918
1,912,291	161,514	-	13,210	2,087,015	1,604,686	-	-	42,913	1,647,599
453,160	-	-	-	453,160	174,762	-	-	-	174,762
150,240	-	-	-	150,240	564,082	-	-	-	564,082
88,540	-	-	-	88,540	830,697	-	-	-	830,697
1,187,719	-	-	-	1,187,719	22,295	-	-	-	22,295
-	3,055	-	-	3,055	-	-	-	-	-
-	158,459	-	-	158,459	-	-	-	-	-
32,632	-	-	13,210	45,842	12,850	-	-	42,913	55,763
8/ 825,481	-	-	8/ 43,692	8/ 869,173	9/ 308,141	-	-	-	9/ 308,141
8/ 65,232	-	-	-	8/ 65,232	9/ 61,305	-	-	-	9/ 61,305
8/ 732,204	-	-	-	8/ 732,204	9/ 246,789	-	-	-	9/ 246,789
8/ 28,045	-	-	-	8/ 28,045	9/ 47	-	-	-	9/ 47
-	-	-	8/ 43,692	8/ 43,692	-	-	-	-	-
2,950,061	-	-	-	2,950,061	150,351	-	-	1,264	151,615
2,950,061	-	-	-	2,950,061	81,162	-	-	-	81,162
-	-	-	-	-	45,852	-	-	-	45,852
-	-	-	-	-	4,426	-	-	-	4,426
-	-	-	-	-	18,911	-	-	1,264	20,175
228,315	3,997	-	612	232,924	203,916	-	-	5,245	209,161
190,285	-	-	-	190,285	49,845	-	-	-	49,845
37,915	-	-	-	37,915	135,050	-	-	-	135,050
115	-	-	-	115	11,207	-	-	-	11,207
-	-	-	-	-	7,814	-	-	-	7,814
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	3,997	-	-	3,997	-	-	-	-	-
-	-	-	612	612	-	-	-	5,245	5,245
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
57,151,482	30,957,651	19,941,817	6,136,655	224,187,605	71,071,026	1,828,484	4,796,403	4,412,579	82,108,492
58,439,488	293,619	2,350,524	-	71,083,631	5,577,853	28,026	41,866	-	5,647,745
45,020,505	10,035,805	5,968,268	-	61,024,578	45,247,391	1,189,980	2,687,207	-	49,124,578
4,529,593	556,657	19,824	-	5,106,074	9,981,333	105,065	68,826	-	10,155,224
45,194,585	3,209,534	10,151,442	-	58,555,561	9,880,829	286,633	1,028,719	-	11,196,181
-	-	-	-	-	-	-	-	-	-
502	-	1,421,871	-	1,422,373	-	-	817,269	-	817,269
-	656,378	27,576	-	683,954	-	39,647	152,516	-	192,163
-	16,121,975	-	-	16,121,975	-	179,133	-	-	179,133
3,966,809	83,683	2,312	6,136,655	10,189,459	383,620	-	-	4,412,579	4,796,199
-	-	-	-	3,196,334	-	-	-	-	9/ 2,765,675
-	-	-	-	9,119	-	-	-	-	9/ 29,554
-	-	-	-	1,022,451	-	-	-	-	9/ 1,515,580
-	-	-	-	969,717	-	-	-	-	9/ 928,661
-	-	-	-	1,177,334	-	-	-	-	9/ 288,292
-	-	-	-	-	-	-	-	-	9/ 8
-	-	-	-	17,713	-	-	-	-	9/ 3,580
-	-	-	-	2,851,940	-	-	-	-	9/ 6,469,394
-	-	-	-	1,648,004	-	-	-	-	9/ 209,712
-	-	-	-	239,311	-	-	-	-	9/ 3,286,850
-	-	-	-	211,527	-	-	-	-	9/ 2,305,270
-	-	-	-	78,152	-	-	-	-	9/ 559,801
-	-	-	-	1,479	-	-	-	-	9/ 599
-	-	-	-	673,467	-	-	-	-	9/ 107,162
-	-	-	-	230,235,879	-	-	-	-	91,343,561

Th item includes only such shipments to tidewater ports for cargoes destined to points outside the United States and Canada are reported to this office. The tonnages shown here are not all inclusive.

In e case of District 3, the tonnages shown in Column 1 for the all-rail, river and ex-river movement and truck movement resent lump coal and double screened coal with a bottom size larger than 2". The tonnages shown in Column 2 for these e movements represent lump coal and double screened coal with a bottom size 2" and smaller.

In des some crushed lignite.

In des all screenings. Breakdown of size of screenings not reported.

In ded with "All minus resultant and dedusted screenings with top size over 3/4" and not exceeding 2"".

Di ict of origin not ascertainable.

TABLE 4

SHIPMENTS OF BITUMINOUS COAL AND LIGNITE DURING THE CALENDAR YEAR 1946 (Continued)

Size Group and Movement / District and Use	All Minus Resultant and Dedusted Screenings with Top Size not Exceeding 3/4" (5)					Total	
	All-Rail River and Ex-River 1/	Interport 2/ Tidewater	Interport 2/ Lake	Truck 3/	Total	All-Rail River and Ex-River 1/	Interpo Tidewater
District 19. Wyoming							
Total	15,866	-	-	3,827	19,693	7,320,079	28,013
Railroad Fuel	-	-	-	-	-	5,161,124	-
Industrial	15,866	-	-	-	15,866	1,268,056	-
Retail Dealers	-	-	-	-	-	779,193	-
Smithing	-	-	-	-	-	-	-
Bunker and Vessel Fuel	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	28,013
Use Not Reported	-	-	-	3,827	3,827	111,706	-
District 20. Utah							
Total	61,756	-	-	-	61,756	5,409,420	198,293
Railroad Fuel	454	-	-	-	454	682,474	-
Industrial	59,467	-	-	-	59,467	913,403	-
Retail Dealers	1,835	-	-	-	1,835	2,464,289	-
Byproduct and Water Gas 5/	-	-	-	-	-	1,240,976	-
Bunker and Vessel Fuel	-	-	-	-	-	-	3,122
Export 6/	-	-	-	-	-	-	195,171
Use Not Reported	-	-	-	-	-	108,278	-
District 21. North and South Dakota							
Total	10/	-	-	-	10/	2,185,157	-
Railroad Fuel	10/	-	-	-	10/	144,384	-
Industrial	10/	-	-	-	10/	1,052,784	-
Retail Dealers	10/	-	-	-	10/	987,989	-
Use Not Reported	-	-	-	10/	10/	-	-
District 22. Montana							
Total	104,431	-	-	147	104,578	3,577,899	-
Railroad Fuel	5,207	-	-	-	5,207	3,064,267	-
Industrial	84,767	-	-	-	84,767	162,540	-
Retail Dealers	9,044	-	-	-	9,044	326,650	-
Use Not Reported	5,413	-	-	147	5,560	24,442	-
District 23. Washington and Alaska							
Total	61,361	-	-	1,396	62,757	670,251	6,211
Railroad Fuel	-	-	-	-	-	241,545	-
Industrial	35,105	-	-	-	35,105	327,621	-
Retail Dealers	8,279	-	-	-	8,279	69,902	-
Byproduct and Water Gas	-	-	-	-	-	11,346	-
Storage	-	-	-	-	-	1,676	-
Bunker and Vessel Fuel	-	-	-	-	-	-	2,214
Export 6/	-	-	-	-	-	-	3,997
Use Not Reported	17,977	-	-	1,396	19,373	18,161	-
District Not Reported							
Total	-	-	-	-	-	-	-
Retail Dealers	-	-	-	-	-	-	-
Export 6/	-	-	-	-	-	-	-
Total (excluding ex-dock movement)							
Total	26,062,182	5,369,546	4,275,904	673,914	36,381,546	368,570,452	40,471,134
Railroad Fuel	654,460	7,099	805	-	662,364	98,304,568	352,820
Industrial	19,197,843	4,110,311	1,632,780	-	24,940,934	128,280,150	15,562,885
Retail Dealers	1,028,534	41,168	360	-	1,070,062	74,302,467	1,096,032
Byproduct and Water Gas 5/	5,087,797	1,008,564	2,394,481	-	8,490,842	62,443,627	4,767,263
Smithing	-	-	-	-	-	-	-
Storage	-	-	217,487	-	217,487	2,978	-
Bunker and Vessel Fuel	-	61,186	29,991	-	91,177	-	978,118
Export 6/	-	141,166	-	-	141,166	-	17,616,447
Use Not Reported	93,548	52	-	673,914	767,514	5,236,662	97,569
Tidewater - ex-dock movement 11/							
Total	-	-	-	-	10/	-	-
Railroad Fuel	-	-	-	-	10/	-	-
Industrial	-	-	-	-	10/	-	-
Retail Dealers	-	-	-	-	10/	-	-
Byproduct and Water Gas	-	-	-	-	10/	-	-
Smithing	-	-	-	-	10/	-	-
Bunker and Vessel Fuel	-	-	-	-	10/	-	-
Lake - ex-dock movement 11/							
Total	-	-	-	-	10/	-	-
Railroad Fuel	-	-	-	-	10/	-	-
Industrial	-	-	-	-	10/	-	-
Retail Dealers	-	-	-	-	10/	-	-
Byproduct and Water Gas	-	-	-	-	10/	-	-
Smithing	-	-	-	-	10/	-	-
Bunker and Vessel Fuel	-	-	-	-	10/	-	-
GRAND TOTAL	-	-	-	-	36,381,546	-	-

ns 1 through 5 (6)			Size not Reported (7)					Other disposals, use and size not specified (8)	Coal used at mines 4/ (9)	Net change in inventory (10)	Grand total Columns 6 through 10 (11)
ke	Truck 3/	Total	All-Rail River and Ex-River 1/	Interport 2/ Tidewater	Interport 2/ Lake	Truck 3/	Total				
-	80,530	7,428,622	23	-	-	-	23	-	132,804	- 2,636	7,558,813
-	-	5,161,124	-	-	-	-	-				
-	-	1,268,056	-	-	-	-	-				
-	-	779,193	-	-	-	-	-				
-	-	-	23	-	-	-	23				
-	-	-	-	-	-	-	-				
-	-	28,013	-	-	-	-	-				
-	80,530	192,236	-	-	-	-	-				
-	150,052	5,757,765	-	9,320	-	-	9,320	51	31,183	- 3,724	5,794,595
-	-	682,474	-	-	-	-	-				
-	-	913,403	-	-	-	-	-				
-	-	2,464,289	-	-	-	-	-				
-	-	1,240,976	-	-	-	-	-				
-	-	3,122	-	-	-	-	-				
-	-	195,171	-	9,320	-	-	9,320				
-	150,052	258,330	-	-	-	-	-				
-	130,714	2,315,871	-	-	-	-	-	-	83,861	2,639	2,402,371
-	-	144,384	-	-	-	-	-				
-	-	1,052,784	-	-	-	-	-				
-	-	987,989	-	-	-	-	-				
-	130,714	130,714	-	-	-	-	-				
-	21,073	3,598,972	-	-	-	-	-	-	14,328	- 950	3,612,350
-	-	3,064,267	-	-	-	-	-				
-	-	162,540	-	-	-	-	-				
-	-	326,650	-	-	-	-	-				
-	21,073	45,515	-	-	-	-	-				
-	219,723	896,185	-	1,695	-	-	1,695	-	23,313	- 2,972	918,221
-	-	241,545	-	-	-	-	-				
-	-	327,621	-	-	-	-	-				
-	-	69,902	-	-	-	-	-				
-	-	11,346	-	-	-	-	-				
-	-	1,676	-	-	-	-	-				
-	-	2,214	-	1,695	-	-	1,695				
-	-	3,997	-	-	-	-	-				
-	219,723	237,884	-	-	-	-	-				
-	-	-	-	14,009	-	-	14,009	-	-	-	14,009
-	-	-	-	13,731	-	-	13,731				
-	-	-	-	278	-	-	278				
51,011	22,720,139	467,712,736	1,177,714	567,701	20,474	107,884	1,873,773	21,716	4,372,293	277,377	474,257,895
28,400	-	101,985,788	73,670	-	7,792	-	81,462				
76,452	-	155,019,487	839,354	7,449	849	-	847,652				
70,038	-	75,868,537	29,528	66,246	1,741	-	97,515				
60,433	-	81,871,323	1,934	1,658	3,535	-	7,127				
-	-	-	119,132	-	-	-	119,132				
97,581	-	5,100,559	-	-	5,248	-	5,248				
15,795	-	2,193,913	-	15,059	1,309	-	16,368				
-	-	17,616,447	-	477,289	-	-	477,289				
2,312	22,720,139	28,056,682	114,096	-	-	107,884	221,980				
-	-	7,597,965	-	-	-	-	84,183	-	-	-	7,682,148
-	-	39,221	-	-	-	-	-				
-	-	3,114,206	-	-	-	-	60,000				
-	-	2,949,144	-	-	-	-	24,183				
-	-	1,471,810	-	-	-	-	-				
-	-	88	-	-	-	-	-				
-	-	23,496	-	-	-	-	-				
-	-	14,935,922	-	-	-	-	361	-	-	-	14,936,283
-	-	1,907,571	-	-	-	-	-				
-	-	4,186,734	-	-	-	-	-				
-	-	7,115,457	-	-	-	-	361				
-	-	656,353	-	-	-	-	-				
-	-	2,598	-	-	-	-	-				
-	-	1,067,209	-	-	-	-	-				
-	-	490,246,623	-	-	-	-	1,958,317	21,716	4,372,293	277,377	496,876,326

RECAPITULATION OF THE DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PRODUCED DUR
BY DISTRICT OF ORIGIN, M
(In net ton

TABLE 5

(Includes mines with an average daily capacity of 50 tons or more and all

Method of Movement and/or Use	DI			
	1	2	3	4
Total all-rail movements - Industrial Use	15,049,483	8,724,562	10,307,987	9,018,303
Total all-rail movements - Retail Dealers	1,956,062	1,895,355	2,448,116	2,259,982
Total shipments of railroad fuel, other than shipments to tidewater and lake	5,539,495	10,638,933	10,821,644	9,494,893
Total shipments of coal to byproduct and beehive coke plants, other than to tidewater and lake	3,392,605	28,675,038	4,297,903	17,060
Total shipments of smithing coal other than to tidewater and lake	77,426	1,239	207	-
Total river shipments, other than for railroad fuel, byproduct, or smithing use	-	2,375,302	239,787	58,945
Total ex-river shipments, other than for railroad fuel, byproduct, or smithing use	-	114,729	61,001	-
Total shipments to tidewater	12,457,957	2,098,754	3,404,557	-
Total shipments to the Great Lakes	2,222,790	6,351,527	3,617,243	4,026,943
Total shipments to distributors and wholesalers where the final destination and use are not known	661,532	1,665,785	162,018	189,665
Total all-rail, river and ex-river shipments to storage piles	-	288	30,562	-
Shipments by truck or wagon, other than deliveries to byproduct plants and to coke ovens and for smithing use	1,541,495	4,089,607	213,989	4,720,018
Shipments via private railroad, other than deliveries to byproduct plants and to coke ovens and for smithing use	-	90,595	-	28,802
Shipments via tramway, other than deliveries to byproduct plants and to coke ovens and for smithing use	19,012	153,052	-	4,331
Shipments via conveyor belt, other than deliveries to byproduct plants and to coke ovens and for smithing use	252,733	924,811	418,595	-
Total Tonnage Shipped	43,170,590	67,799,577	36,023,609	29,818,942
Coal used by mine employees	146,482	316,171	53,455	47,182
Coal used to produce coal	371,330	77,362	32,113	24,258
Coal made into briquettes or packaged fuel at the reporting mine	-	-	-	-
Other disposals not specified above	106	3,568	62	1,686
Total Tons Shipped or Used	43,688,508	68,196,678	36,109,239	29,892,068
Net Change in Inventories	-27,565	89,150	37,489	-5,102
Total Production Reported	43,660,943	68,285,828	36,146,728	29,886,966
Percent of Grand Total Production	80.2	91.3	88.7	92.5

THE CALENDAR YEAR 1946, AS REPORTED ON FORMS S.F.A. NOS. 38 AND 56
OD OF MOVEMENT, AND/OR USE
f 2,000 pounds)

nes, washeries, and preparation plants with rail or river connections)

ICT OF ORIGIN							
	6	7	8	9	10	11	12
,777	455,372	6,955,900	22,745,091	3,647,302	20,006,158	8,835,842	509,892
,763	119,100	13,805,896	21,012,982	3,261,898	12,138,167	2,891,101	95,423
	1,075,105	724,008	12,470,810	5,865,902	18,656,186	6,877,142	133,903
	-	6,898,523	9,961,043	-	383,222	74,590	-
	-	15,369	2,473	-	-	-	-
	625,535	-	2,583,084	216,491	3,510,412	-	-
	-	-	1,195,202	-	12,752	-	-
	30,123	12,659,760	6,331,797	1,187,454	258,189	-	-
	439,504	9,075,147	20,071,069	952,725	131,672	61,790	-
	15,566	287,849	1,509,446	103,020	149,254	41,890	21,905
	-	13,625	13,694	512	-	-	-
382	612,896	173,606	985,535	656,851	5,520,807	1,310,016	344,333
	-	-	-	-	-	-	-
	-	-	366,412	17,414	-	-	-
	814,190	138,480	47,495	3,029	109,608	451,015	-
922	4,187,391	50,748,163	99,296,133	15,912,598	60,876,427	20,543,386	1,105,456
726	1,589	405,354	677,183	20,961	257,935	26,045	7,662
556	3,568	139,014	101,532	40,770	690,851	82,774	2,282
	-	234,677	-	-	-	-	-
	-	2,022	12,629	-	1,536	-	-
204	4,192,548	51,529,230	100,067,477	15,974,329	61,826,749	20,652,205	1,115,400
232	-227	68,721	105,316	617	4,669	14,256	5,136
972	4,192,321	51,597,951	100,192,793	15,974,946	61,831,418	20,666,461	1,120,536
	96.1	98.2	87.7	92.8	97.4	95.3	62.7

RECAPITULATION OF THE DISTRIBUTION OF BITUMINOUS COAL AND LIGNITE PR
BY DISTRICT

TABLE 5

(Includes mines with an average daily capacity of 50 tons or mo

Method of Movement and/or Use	13	14	15
Total all-rail movements - Industrial Use	1,907,141	215,262	2,410,064
Total all-rail movements - Retail Dealers	1,242,125	833,421	2,230,189
Total shipments of railroad fuel, other than shipments to tidewater and lake	3,351,149	87,132	1,877,405
Total shipments of coal to byproduct and beehive coke plants, other than to tidewater and lake	6,477,636	18,619	-
Total shipments of smithing coal other than to tidewater and lake	21,918	-	-
Total river shipments, other than for railroad fuel, byproduct, or smithing use	91,936	-	-
Total ex-river shipments, other than for railroad fuel, byproduct, or smithing use	-	-	-
Total shipments to tidewater	1,230,875	70,147	779,088
Total shipments to the Great Lakes	-	-	-
Total shipments to distributors and wholesalers where the final destination and use are not known	54,956	103,271	61,356
Total all-rail, river and ex-river shipments to storage piles	-	-	-
Shipments by truck or wagon, other than deliveries to byproduct plants and to coke ovens and for smithing use	379,945	6,785	666,377
Shipments via private railroad, other than deliveries to byproduct plants and to coke ovens and for smithing use	350,751	-	-
Shipments via tramway, other than deliveries to byproduct plants and to coke ovens and for smithing use	24,417	-	-
Shipments via conveyor belt, other than deliveries to byproduct plants and to coke ovens and for smithing use	-	-	-
Total Tonnage Shipped	15,132,849	1,334,637	8,024,479
Coal used by mine employees	88,507	2,671	6,892
Coal used to produce coal	66,020	3,960	12,625
Coal made into briquettes or packaged fuel at the reporting mine	-	-	-
Other disposals not specified above	-	-	56
Total Tons Shipped or Used	15,287,376	1,341,268	8,044,052
Net change in Inventories	1,154	2,138	-12,492
Total Production Reported	15,288,530	1,343,406	8,031,560
Percent of Grand Total Production	88.9	71.8	92.4

ED DURING THE CALENDAR YEAR 1946, AS REPORTED ON FORMS S.F.A. NOS. 38 AND 56
ORIGIN, METHOD OF MOVEMENT, AND/OR USE
n net tons of 2,000 pounds)

nd all mines, washeries, and preparation plants with rail or river connections)

	DISTRICT OF ORIGIN							
	17	18	19	20	21	22	23	Total
46	347,634	13,831	1,268,056	911,902	1,052,784	162,540	309,091	115,436,020
40	1,267,716	47,856	779,193	2,464,289	987,989	326,650	69,902	72,646,415
50	1,387,017	63,970	5,161,124	682,474	144,384	3,064,267	241,545	98,378,238
	997,000	-	-	1,240,976	-	-	11,346	62,445,561
	477	-	23	-	-	-	-	119,132
	-	-	-	-	-	-	-	9,701,492
	-	-	-	-	-	-	-	1,383,684
	146,873	-	35,063	234,543	-	-	365	40,925,545
	-	-	-	-	-	-	-	46,950,410
	3,279	-	111,706	108,278	-	24,442	18,161	5,293,379
	-	-	-	-	-	--	1,676	60,357
50	296,321	22,318	80,530	150,052	130,714	21,073	219,723	22,828,023
	-	-	-	-	-	-	18,530	488,678
	-	-	-	-	-	-	-	584,638
87	7,925	22,703	-	1,501	-	-	-	3,210,572
73	4,454,242	170,678	7,435,695	5,794,015	2,315,871	3,598,972	890,339	480,452,144
06	25,028	1,969	32,288	14,536	2,235	9,005	10,735	2,171,317
07	63,543	5,744	100,516	16,647	81,626	5,323	12,578	1,966,299
	-	-	-	-	-	-	-	234,677
	-	-	-	51	-	-	-	21,716
86	4,542,813	178,391	7,568,499	5,825,249	2,399,732	3,613,300	913,652	484,846,153
58	6,406	-3,556	-2,636	-3,724	2,639	-950	-2,972	277,377
28	4,549,219	174,835	7,565,863	5,821,525	2,402,371	3,612,350	910,680	485,123,530
	90.1	63.2	99.1	97.1	93.4	97.0	66.2	90.9

PRODUCTION OF BITUMINOUS COAL AND LIGNITE BY CONSOLID
AS REPORTED ON FORMS S.F.A
(In net tons of 2,0

TABLE 6

(Includes mines with an average daily capacity of 50 tons or more and

District and Movement	All Lump Coal and All Double Screened Coal with Top Size Over 2" (1)		All Double Screened Coal with Top Size not exceeding 2" (2)		M/R Mod. M/R Dom. M/R Screened and Altered M/R and Minus Resultant with Top Size Over 2" (3)		All Min Dedustec Top Si not
	Tons	Percent	Tons	Percent	Tons	Percent	To
District 1. Eastern Pennsylvania							
Total	1,965,270	4.6	1,835,187	4.4	30,356,850	70.5	2,858
Truck	105,073	6.8	94,097	6.1	1,192,915	77.4	5
Railroad Fuel 2/	257,172	4.7	29,700	.5	5,057,893	91.3	39
Other 3/	1,603,025	4.5	1,761,390	4.9	24,106,042	67.0	2,76
District 2. Western Pennsylvania							
Total	6,468,257	9.6	2,781,562	4.1	51,516,843	76.1	5,308
Truck	1,367,199	33.6	333,099	8.2	1,532,325	37.7	682
Railroad Fuel 2/	1,090,571	10.2	154,565	1.5	8,897,083	83.7	439
Other 3/	4,010,487	7.6	2,293,898	4.3	41,087,435	77.6	4,18
District 3. Northern West Virginia 4/							
Total	2,192,693	6.1	6,334,307	17.6	20,918,643	58.1	2,637
Truck	13,837	6.4	69,962	32.7	129,173	60.4	-
Railroad Fuel 2/	361,903	3.4	1,995,264	18.4	8,279,060	76.5	108
Other 3/	1,816,953	7.3	4.269,081	17.1	12,510,410	50.1	2,528
District 4. Ohio							
Total	5,727,189	19.6	1,705,054	5.8	15,765,861	53.9	4,426
Truck	1,317,722	28.1	319,042	6.8	2,105,911	45.0	824
Railroad Fuel 2/	1,297,297	13.7	27,832	.3	7,881,760	83.2	239
Other	3,112,170	20.6	1,358,180	9.0	5,778,190	38.3	3,362
District 5. Michigan							
Total	42,634	61.5	-	-	894	1.3	25
Truck	28,923	72.8	-	-	-	-	10
Other	13,711	46.4	-	-	894	3.0	14
District 6. Panhandle							
Total	510,699	12.2	221,687	5.3	2,953,208	70.7	270
Truck	165,605	27.4	31,947	5.3	369,714	61.2	28
Railroad Fuel 2/	33,407	3.1	15,192	1.4	1,012,990	94.2	
Other	311,687	12.5	174,548	7.0	1,570,504	62.8	240
District 7. Southern No. 1							
Total	9,812,608	19.4	4,465,016	8.8	16,757,822	33.2	4,451
Truck	115,019	66.3	38,545	22.2	14,917	8.6	
Railroad Fuel 2/	21,761	3.0	18,490	2.6	549,377	77.4	50
Other	9,675,828	19.5	4,407,981	8.9	16,193,528	32.6	4,400
District 8. Southern No. 2							
Total	26,635,358	26.9	8,640,013	8.7	35,821,307	36.2	22,041
Truck	637,137	65.4	60,764	6.2	227,461	23.3	24
Railroad Fuel 2/	930,199	7.5	261,774	2.1	9,499,281	76.3	1,658
Other	25,068,022	29.3	8,317,475	9.7	26,094,565	30.5	20,358

D SIZE GROUPS DURING THE CALENDAR YEAR 1946
DS. 38 AND 56
pounds)

mines, washeries, and preparation plants with rail or river connections)

esultant and creenings with ver 3/4" and ceeding 2" (4)		All Minus Resultant and Dedusted Screenings with Top Size not exceeding 3/4" (5)		Total Columns 1 through 5 (6)		Size not reported (7)	Coal used at mines 1/ (8)	Net change in inventory (9)	Grand total Columns 6 through 9 (10)
	Percent	Tons	Percent	Tons	Percent				
00	6.6	5,997,662	13.9	43,063,559	100.0	107,137	517,812	-27,565	43,660,943
97	3.6	94,013	6.1	1,541,495	100.0	-			
32	.7	155,382	2.8	5,539,429	100.0	66			
1	7.7	5,748,267	15.9	35,982,635	100.0	107,071			
7	7.8	1,607,589	2.4	67,682,698	100.0	120,447	393,533	89,150	68,285,828
6	16.7	153,394	3.8	4,068,583	100.0	21,024			
8	4.1	53,163	.5	10,635,270	100.0	3,663			
3	7.9	1,401,032	2.6	52,978,845	100.0	95,760			
1	7.3	3,940,705	10.9	36,023,349	100.0	322	85,568	37,489	36,146,728
	-	1,017	.5	213,989	100.0	-			
4	1.0	76,683	.7	10,821,644	100.0	-			
7	10.1	3,863,005	15.4	24,987,716	100.0	322			
5	15.2	1,617,015	5.5	29,241,864	100.0	578,764	71,440	- 5,102	29,886,966
7	17.6	115,764	2.5	4,683,066	100.0	36,952			
5	2.5	29,005	.3	9,475,279	100.0	19,614			
3	22.3	1,472,246	9.8	15,083,519	100.0	522,198			
1	37.2	-	-	59,279	100.0	2,643	8,282	- 232	79,972
6	27.2	-	-	39,739	100.0	2,643			
5	50.6	-	-	29,540	100.0	-			
1	6.5	222,824	5.3	4,178,549	100.0	8,842	5,157	- 227	4,192,321
8	4.8	7,960	1.3	604,054	100.0	8,842			
9	.1	12,557	1.2	1,075,105	100.0				
4	9.6	202,307	8.1	2,499,390	100.0	-			
9	8.8	15,034,420	29.8	50,521,285	100.0	228,900	779,045	68,721	51,597,951
9	.1	4,857	2.8	173,457	100.0	149			
5	7.2	69,444	9.8	709,847	100.0	14,161			
5	8.9	14,960,119	30.1	49,637,981	100.0	214,590			
5	22.2	5,926,498	6.0	99,064,431	100.0	244,331	778,715	105,316	100,192,793
7	2.5	25,341	2.6	974,850	100.0	10,685			
5	13.3	97,225	.8	12,446,664	100.0	24,146			
3	23.8	5,803,932	6.7	85,642,917	100.0	209,500			

TABLE 6

PRODUCTION OF BITUMINOUS COAL AND LIGNITE BY CON
AS REPORTED ON FORMS

District and Movement	All Lump Coal and All Double Screened Coal with Top Size Over 2" (1)		All Double Screened Coal with Top Size not exceeding 2" (2)		M/R Mod. M/R Dom. M/R Screened and Altered M/R and Minus Resultant with Top Size Over 2" (3)		All Minus Dedusted S Top Size not ex
	Tons	Percent	Tons	Percent	Tons	Percent	Tons
District 9. West Kentucky							
Total	4,348,994	27.3	1,177,629	7.4	6,856,972	43.1	3,084,9
Truck	494,856	75.4	35,609	5.4	40,482	6.1	69,4
Railroad Fuel 2/	1,104,593	18.8	84,996	1.5	4,430,286	75.5	191,4
Other	2,749,545	29.3	1,057,024	11.2	2,386,204	25.4	2,824,0
District 10. Illinois							
Total	19,147,635	31.5	3,443,576	5.7	13,733,722	22.5	21,372,0
Truck	2,624,287	47.7	717,137	13.0	73,057	1.3	1,899,5
Railroad Fuel 2/	8,355,817	44.8	288,800	1.6	8,291,783	44.4	1,643,0
Other 3/	8,167,531	22.3	2,437,639	6.6	5,368,882	14.6	17,829,3
District 11. Indiana							
Total	8,794,241	42.9	2,120,984	10.4	4,792,721	23.4	3,775,8
Truck	707,648	54.0	189,355	14.5	131,026	10.0	255,1
Railroad Fuel 2/	5,312,027	77.3	97,697	1.4	1,306,709	19.0	160,6
Other	2,774,566	22.6	1,833,932	14.9	3,354,986	27.3	3,360,0
District 12. Iowa							
Total	382,848	34.8	65,582	6.0	26,341	2.4	624,1
Truck	178,901	52.7	21,685	6.4	24,788	7.3	113,2
Railroad Fuel	125,784	93.9	6,080	4.6	-	-	2,0
Other	78,163	12.5	37,817	6.0	1,553	.3	508,8
District 13. Southeastern							
Total	1,502,058	9.9	366,301	2.4	6,227,995	41.2	6,958,8
Truck	214,268	56.5	11,881	3.1	128,967	34.0	17,6
Railroad Fuel	9,007	.3	38	5/	3,289,463	98.2	52,6
Other	1,278,783	11.2	354,382	3.1	2,809,565	24.7	6,888,4
District 14. Arkansas and Oklahoma							
Total	723,692	54.3	31,604	2.4	331,301	24.9	164,7
Truck	3,375	49.7	163	2.4	3,235	47.7	
Railroad Fuel	8,052	9.2	585	.7	67,313	77.3	8,3
Other	712,265	57.5	30,856	2.5	260,753	21.1	156,3
District 15. Southwestern							
Total	3,355,098	41.8	574,556	7.2	6/1,650,554	20.6	2,424,4
Truck	386,692	58.2	53,276	8.0	6/ 87,771	13.2	124,1
Railroad Fuel	1,100,953	58.7	24,720	1.3	6/ 693,315	36.9	58,4
Other	1,867,453	34.1	496,560	9.1	6/ 869,468	15.9	2,241,8
District 16. Northern Colorado							
Total	633,955	36.3	190,470	10.9	20,687	1.2	766,
Truck	316,078	49.2	125,246	19.5	9,756	1.5	179,
Railroad Fuel	12,053	61.0	-	-	-	-	7,
Other	305,824	28.2	65,224	6.0	10,931	1.0	579,
District 17. Southern Colorado							
Total	1,301,508	29.3	100,928	2.3	1,368,182	30.8	1,584,
Truck	190,852	64.5	24,485	8.3	4,786	1.6	71,
Railroad Fuel	44,853	3.3	8,300	.6	1,088,017	79.1	221,
Other	1,065,803	38.5	68,143	2.5	275,379	9.9	1,291,

DATED SIZE GROUPS DURING THE CALENDAR YEAR 1946
A. NOS. 38 AND 56

ltant and nings with 3/4" and ing 2")	All Minus Resultant and Dedusted Screenings with Top Size not exceeding 3/4" (5)		Total Columns 1 through 5 (6)		Size not reported (7)	Coal used at mines 1/ (8)	Net change in inventory (9)	Grand total Columns 6 through 9 (10)
Percent	Tons	Percent	Tons	Percent				
19.4	443,920	2.8	15,912,418	100.0	180	61,731	617	15,974,946
10.6	16,292	2.5	656,671	100.0	180			
3.3	54,606	.9	5,865,902	100.0	-			
30.1	373,022	4.0	9,389,845	100.0	-			
35.1	3,153,793	5.2	60,850,740	100.0	27,223	948,786	4,669	61,831,418
34.6	186,990	3.4	5,501,054	100.0	19,753			
8.8	76,692	.4	18,656,186	100.0	-			
48.6	2,890,111	7.9	36,693,500	100.0	7,470			
18.4	1,004,428	4.9	20,488,272	100.0	55,114	108,819	14,256	20,666,461
19.5	26,789	2.0	1,310,016	100.0	-			
2.3	48	5/	6,877,142	100.0	-			
27.3	977,591	7.9	12,301,114	100.0	55,114			
56.7	576	.1	1,099,489	100.0	5,967	9,944	5,136	1,120,536
33.4	576	.2	339,226	100.0	5,107			
1.5	-	-	133,903	100.0	-			
81.2	-	-	626,360	100.0	860			
46.1	52,103	.4	15,107,258	100.0	25,591	154,527	1,154	15,288,530
4.7	6,612	1.7	379,403	100.0	542			
1.5	-	-	3,351,149	100.0	-			
60.6	45,491	.4	11,376,706	100.0	25,049			
12.3	80,856	6.1	1,332,169	100.0	2,468	6,631	2,138	1,343,406
.2	-	-	6,785	100.0	-			
9.5	2,863	3.3	87,132	100.0	-			
12.6	77,993	6.3	1,238,252	100.0	2,468			
30.2	14,428	.2	8,019,045	100.0	5,490	19,517	- 12,492	8,031,560
18.7	12,944	1.9	664,811	100.0	1,566			
3.1	-	-	1,877,405	100.0	-			
40.9	1,484	5/	5,476,829	100.0	3,924			
43.9	134,972	7.7	1,746,173	100.0	-	41,013	- 858	1,786,328
27.9	12,180	1.9	642,650	100.0	-			
39.0	-	-	19,750	100.0	-			
53.4	122,792	11.4	1,083,773	100.0	-			
35.7	85,360	1.9	4,440,542	100.0	13,700	88,571	6,406	4,549,219
24.3	3,812	1.3	295,880	100.0	441			
16.1	12,797	.9	1,374,997	100.0	12,020			
46.6	68,751	2.5	2,769,665	100.0	1,239			

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TABLE 6

PRODUCTION OF BITUMINOUS COAL AND LIGNITE BY CONS
AS REPORTED ON FORMS S

District and Movement	All Lump Coal and All Double Screened Coal with Top Size Over 2" (1)		All Double Screened Coal with Top Size not exceeding 2" (2)		M/R Mod. M/R Dom. M/R Screened and Altered M/R and Minus Resultant with Top Size Over 2" (3)		All Minu Dedusted Top Siz not
	Tons	Percent	Tons	Percent	Tons	Percent	Tons
District 18. New Mexico							
Total	84,781	49.7	17,535	10.3	4,255	2.5	54,
Truck	15,115	67.7	5,198	23.3	1,989	8.9	
Railroad Fuel	25,936	40.6	–	–	–	–	29,
Other	43,730	51.8	12,337	14.6	2,266	2.7	25,
District 19. Wyoming							
Total	1,114,171	15.0	182,504	2.5	4,620,870	62.1	1,498,
Truck	61,685	76.6	8,145	10.1	868	1.1	6,
Railroad Fuel	391,185	7.6	34,967	.7	4,436,420	86.0	298,
Other 3/	661,301	30.1	139,392	6.4	183,582	8.4	1,193,
District 20. Utah							
Total	1,787,415	30.8	182,846	3.2	2,114,193	36.5	1,647,
Truck	92,671	61.8	1,258	.8	13,210	8.8	42,
Railroad Fuel	40,174	5.9	13,924	2.0	453,160	66.4	174,
Other	1,654,570	33.4	167,664	3.4	1,647,823	33.2	1,430,
District 21. North and South Dakota							
Total	917,143	39.6	221,414	9.6	6/ 869,173	37.5	7/ 308,
Truck	76,207	58.3	10,815	8.3	6/ 43,692	33.4	–
Railroad Fuel	16,505	11.4	1,342	.9	6/ 65,232	45.2	7/ 61,
Other	824,431	40.4	209,257	10.3	6/ 760,249	37.2	7/ 246,
District 22. Montana							
Total	305,127	8.5	87,591	2.4	2,950,061	82.0	151,
Truck	16,460	78.1	3,202	15.2	–	–	1,
Railroad Fuel	25,496	.8	2,341	.1	2,950,061	96.3	81,
Other	263,171	51.2	82,048	16.0	–	–	69,
District 23. Washington Only							
Total	156,911	17.6	232,583	26.1	228,927	25.7	209,
Truck	98,251	44.7	114,219	52.0	612	.3	5,
Railroad Fuel	1,376	.6	39	5/	190,285	78.8	49,
Other 3/	57,284	13.4	118,325	27.6	38,030	8.8	154,
GRAND TOTAL	97,910,285	20.4	35,028,929	7.3	219,887,382	45.9	86,644,
Truck	9,227,861	40.6	2,269,130	10.0	6,136,655	27.0	4,412,
Railroad Fuel 2/	20,566,121	20.9	3,066,646	3.1	68,439,488	69.6	5,577,
Other 3/	68,116,303	19.0	29,693,153	8.3	145,311,239	40.6	76,654,

---

1/ Includes coal used to produce coal, coal used by mine employees, and coal made into briquettes or packaged fuel at th

2/ Includes all methods of movement except tidewater and lake.

3/ Includes truck shipments to byproduct and beehive coke ovens away from the producing mine and for smithing use as fo District 19, 23 tons; District 23, 1790 tons.

4/ In the case of District 3, the tonnages shown in Columns 1 represent lump coal and double screened coal with a botto size 2" and smaller.

5/ Less than one tenth of one percent.

6/ Includes some crushed lignite.

7/ Includes all screenings. Breakdown of size of screenings not reported.

8/ Included with "all minus resultant and dedusted screenings with top size over 3/4" and not exceeding 2"."

DATED SIZE GROUPS DURING THE CALENDAR YEAR 1946
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esultant and reenings with ver 3/4" and eeding 2" 4)	All Minus Resultant and Dedusted Screenings with Top Size not exceeding 3/4" (5)		Total Columns 1 through 5 (6)		Size not reported (7)	Coal used at mines 1/ (8)	Net change in inventory (9)	Grand total Columns 6 through 9 (10)
Percent	Tons	Percent	Tons	Percent				
32.1	9,208	5.4	170,678	100.0	-	7,713	- 3,55[illegible]	174,835
.1	3	5/	22,318	100.0	-			
46.4	8,334	13.0	63,970	100.0	-			
29.9	871	1.0	84,390	100.0	-			
20.1	19,693	.3	7,435,672	100.0	23	132,804	- 2,636	7,565,863
7.4	3,827	4.8	80,530	100.0	-			
5.7	-	-	5,161,124	100.0	-			
54.4	15,866	.7	2,194,018	100.0	23			
28.4	61,756	1.1	5,794,015	100.0	51	31,183	- 3,724	5,821,525
28.6	-	-	150,052	100.0	-			
25.6	454	.1	682,474	100.0	-			
28.8	61,302	1.2	4,961,489	100.0	51			
13.3	8/	-	2,315,871	100.0	-	83,861	2,639	2,402,371
-	-	-	130,714	100.0	-			
42.5	8/	-	144,384	100.0	-			
12.1	8/	-	2,040,773	100.0	-			
4.2	104,578	2.9	3,598,972	100.0	-	14,328	- 950	3,612,350
6.0	147	.7	21,073	100.0	-			
2.6	5,207	.2	3,064,267	100.0	-			
13.5	99,224	19.3	513,632	100.0	-			
23.5	62,757	7.1	890,339	100.0	-	23,313	- 2,972	910,680
2.4	1,396	.6	219,723	100.0	-			
20.6	-	-	241,545	100.0	-			
35.9	61,361	14.3	429,071	100.0	-			
18.1	39,575,141	8.3	479,046,667	100.0	1,427,193	4,372,293	277,377	485,123,530
19.4	673,914	3.0	22,720,139	100.0	107,884			
5.7	654,460	.7	98,304,568	100.0	73,670			
21.4	38,246,767	10.7	358,021,960	100.0	1,245,639			

reporting mine.

ws: District 1, 413 tons; District 2, 852,431 tons; District 3, 25,392 tons; District 10, 338 tons;

ize larger than 2". The tonnages shown in Column 2 represent lump coal and double screened coal with bottom

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MINERAL INDU

UNITED STATES DEPART
BUREAU

J. A. KRUG, Secretary

June 1948

BITUMINOUS COAL DISTR

CALENDAR YEAR 19

Prepared by Economic Analysis Sec
Economics and Statistics Div

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

THE
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J. A. KRUG, Secretary
JAMES BOYD, Director

FOR RELEASE APRIL 26, 1948.

MINERAL MARKET REPORTS
M.M.S. 1593.

VANADIUM IN 1947

Both output and consumption of domestic vanadium ore turned upward in 1947 after having declined for three consecutive years, according to the Bureau of Mines, United States Department of the Interior. Imports of vanadium ore and concentrates were also greater than in 1946.

Production of vanadium ore was 2,117,962 pounds (contained vanadium) in 1947, a gain of 66 percent over 1946. Colorado supplied 1,912,158 pounds, or 90 percent of the total, in 1947. The remainder of the output was from Arizona, Idaho, New Mexico, and Utah.

Imports of vanadium ore and concentrates (all from Peru) were 983,869 pounds (contained vanadium) in 1947, a gain of 24 percent over 1946. Flue dust containing 71,799 pounds of vanadium was received from Curacao in 1947, compared with 20,931 pounds in 1946.

Salient statistics of the vanadium industry in the United States, 1943-47, in pounds of vanadium contained

	1943	1944	1945	1946	1947
Mine shipments of ores and concentrates 1/........	5,586,492	3,527,054	2,963,913	1,272,148	2,117,962
Imports:					
Ore or concentrates........	2,052,620	1,284,603	1,550,479	791,057	983,869
Vanadium-bearing flue dust.	64,393	40,171	26,293	20,931	71,799
Exports of ore, concentrates, and vanadium oxide..........	38,180	6,254	113,927	6,051	13,680
Consumption (domestic ores only).....................	5,179,290	4,113,309	3,821,419	1,495,839	2,236,315

1/ Measured by receipts at mills and Government purchasing depots.

Consumption of domestic vanadium ore was 2,236,315 pounds (contained vanadium) in 1947, an increase of 50 percent over 1946.

Stocks of vanadium ore and concentrates at mills were 631,100 pounds (contained vanadium) on December 31, 1947, compared with 1,243,400 pounds at the close of 1946.

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

Prepared by Hubert W. Davis, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Complete data are not available on consumption of ferrovanadium and chemical compounds, but based on information furnished by identical companies which are believed to consume about 85 percent of the total, it is apparent that usage was 25 percent greater in 1947 than in 1946. Consumption of vanadium in steel, which accounted for about 95 percent of the reported total, was 25 percent larger while usage for other purposes was up 23 percent.

Distribution of vanadium consumption by type of use,
1946-1947, in percent

Use	1946	1947
Steel:		
High-speed steel	55.36	45.71
Other tool steel	13.08	12.76
Other alloy steel	26.66	36.90
Deoxidation and degasification	.35	.15
Total steel	95.45	95.52
Nonsteel:		
Alloy cast iron	.11	.04
Catalysts	3.28	3.47
Total nonsteel	3.39	3.51
Undistributed	1.16	.97
Grand total	100.00	100.00

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary
JAMES BOYD, Director

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FOR RELEASE APRIL 16, 1948

MINERAL MARKET REPORT
MMS NO. 1594

PRODUCTION OF COKE AND COAL CHEMICALS FROM COAL-GAS RETORTS IN 1947

The production of coke from coal-gas retorts in the United States in 1947 declined 12 percent from 1946 and totaled 664,576 tons according to reports received from producers by the Bureau of Mines, United States Department of the Interior. This sharp decrease, in spite of the extremely heavy demand for gas by industrial and domestic consumers, was due principally to the substitution of water-gas, natural gas, and liquified petroleum gas for coal gas at a number of installations. There has been a definite acceleration in conversions since the war and in 1947, 2 plants converted from coal gas to natural gas and 16 plants to propane-air or a mixture of propane-air and water gas. This replacement of coal gas resulted in the dismantling of 729 retorts in 1947 thereby reducing the total number of retorts of all types in existence at the end of the year to 1,419. Of this number only 1,154 were active on December 31, 1947. The steady recession of plants operating coal-gas retorts in recent years has reduced markedly the coal carbonizing capacity of the industry and on December 31, 1947, all retorts in existence were capable of carbonizing 1,273,100 net tons of coal per year. This was a decrease of 21 percent from 1946 and 33 percent less than in 1942 when the Bureau of Mines inaugurated the annual collection of statistics on coal-gas retorts. Based on installations in existence at the end of the year, the industry operated at 86 percent of capacity in 1947 compared with 77 percent in 1946.

The quantity of coal carbonized decreased 12 percent from 1946 but the average cost of coal at producing plants increased $1.15 per ton, or 16 percent. This substantial gain was due largely to the increases in mining and transportation costs resulting from increases granted to the miners under terms of the wage agreement concluded in July 1947 and increases in freight rates on coal authorized by the Interstate Commerce Commission in 1947.

As coke is a secondary product in the manufacture of the main product - gas - more emphasis is placed on the marketing of the gas and usually about 50 percent of the coke produced is used by the producers for heating benches, for manufacturing producer gas and water gas, and for other miscellaneous plant uses. In 1947, producers used 354,466 tons, or 53 percent, of the total output most of which was used as bench fuel or in the manufacture of producer and water gas. The bulk of retort coke marketed is sold for household heating near the sources of production. Retort coke sold for household heating totaled 282,666 tons in 1947, or 92 percent of the total sales for all purposes. The increase in manufacturing costs was reflected in the selling price of the coke which increased $1.17 per ton over 1946. Sales for use in the manufacture of water gas and for other industrial purposes were small, amounting to 23,288 tons valued at $236,066.

Prepared by Maxine M. Otero, J. A. DeCarlo, and J. A. Corgan, Chief, Anthracite and Coke Section under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

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TABLE 1. - SALIENT STATISTICS OF THE COAL-GAS INDUSTRY IN THE UNITED STATES IN 1947

	Horizontal retorts	Vertical retorts and gas ovens	Total
Coke produced:			
Net tons	234,965	429,611	664,576
Value	$2,383,675	$4,115,419	$6,499,094
Screenings or breeze produced ... net tons	19,720	57,604	77,324
Coal charged into retorts:			
Net tons	382,881	711,939	1,094,820
Value	$3,265,681	$6,100,276	$9,365,957
Average per ton	$8.53	$8.57	$8.55
Average yield in percent of coal charged:			
Coke	61.37	60.34	60.70
Breeze (at plants actually recovering)	8.24	8.67	8.56
Retorts:			
In existence December 31	1,007	412	1,419
In operation December 31	755	399	1,154
Annual coal capacity ... net tons	473,800	799,300	1,273,100
Coke used by producer -			
For manufacture of water gas:			
Net tons	73,769	96,445	170,214
Value	$745,247	$886,316	$1,631,563
For manufacture of producer gas:			
Net tons	- - -	29,150	29,150
Value	- - -	$145,750	$145,750
For bench fuel:			
Net tons	57,492	81,683	139,175
Value	$541,032	$763,837	$1,304,869
For other purposes:			
Net tons	9,222	6,705	15,927
Value	$89,624	$48,979	$138,603
Coke sold to other consumers -			
For manufacture of water gas:			
Net tons	10,021	3,255	13,276
Value	$101,454	$33,317	$134,771
For other industrial use:			
Net tons	126	9,886	10,012
Value	$1,732	$99,563	$101,295
For domestic use:			
Net tons	88,403	194,263	282,666
Value	$945,037	$2,048,015	$2,993,052
Stocks on January 1, 1948:			
Coke ... net tons	18,933	61,388	80,321
Breeze ... do	1,461	10,347	11,808
Coal chemical materials:			
Tar:			
Produced ... gallons	4,516,103	10,479,971	14,996,074
Sold -			
For refining:			
Gallons	2,553,093	7,263,975	9,817,068
Value	$144,559	$436,589	$581,148
For fuel:			
Gallons	82,377	- - -	82,377
Value	$6,536	- - -	$6,536
For other purposes:			
Gallons	2,179,325	3,323,660	5,502,985
Value	$118,525	$187,525	$306,050
Stocks on January 1, 1948 ... gallons	649,207	1,290,900	1,940,107
Per ton of coal charged ... do	11.80	14.72	13.70
Ammonia liquor (NH_3 content):			
Produced ... pounds	- - -	951,100	951,100
Sold ... do	- - -	1,006,617	1,006,617
Value of sales	- - -	$25,878	$25,878
Stocks on January 1, 1948 ... pounds	- - -	54,721	54,721
Per ton of coal charged ... do	- - -	3.04	3.04
Crude light oil a/:			
Produced ... gallons	19,494	292,462	311,956
Sold ... do	18,121	291,258	309,379
Value of sales	$1,305	$22,867	$24,172
Stocks on January 1, 1948 ... gallons	10,453	16,821	27,274
Per ton of coal charged ... do	0.20	1.18	0.91

a/ Includes drip and holder oil.

RETORT COKE PRODUCED, USED, AND SOLD, BY STATES

Production of retort coke in 1947 was reported by 56 producers in 22 States compared with 75 producers in 25 States in 1946. Georgia, Tennessee, and Vermont discontinued the manufacture of retort coke in 1947 and were removed from the list of producing States. As for many years in the past, Massachusetts was the leading producer of retort coke accounting for 32 percent of the total output. Following Massachusetts, in order of tonnages, were Wisconsin, New York, Pennsylvania, and Rhode Island which together produced 40 percent of the total. Geographical grouping of the producing States indicated that 42 percent of the total output was produced in the New England Region and the Lake Dock States accounted for 24 percent.

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TABLE 2. - NUMBER OF RETORTS, COAL CHARGED, COKE PRODUCED, VALUE, AND STOCKS IN 1947, BY STATES

State	Active plants	Retorts end of year		Coal charged (net tons)	Yield of coke from coal (percent)	Coke produced (net tons)	Value of coke		On hand December 31 (net tons)
		In existence	In operation				Total	Per ton	
Alabama, Kentucky, North and South Carolina, and Virginia	12	248	218	122,882	63.60	78,152	$630,289	$8.06	5,682
Colorado and Washington	3	114	13	15,955	60.04	9,580	73,521	7.67	447
Connecticut, Maine, and Rhode Island	5	80	59	112,804	59.63	67,269	700,921	10.42	12,909
Illinois, Indiana, Iowa, and Ohio	4	43	21	26,951	61.93	16,691	193,024	11.56	2,097
Massachusetts	9	428	398	381,652	55.04	210,073	2,089,218	9.95	39,121
Michigan, Minnesota, and North Dakota	14	192	174	84,474	61.45	51,911	533,288	10.27	8,490
New Jersey, New York, and Pennsylvania	4	199	156	141,197	66.88	94,428	1,012,458	10.72	11,485
Wisconsin	5	115	115	208,905	65.33	136,472	1,266,375	9.28	90
	56	1,419	1,154	1,094,820	60.70	664,576	6,499,094	9.78	80,321

TABLE 3. - COAL CHARGED AND COKE PRODUCED AT COAL GAS PLANTS IN THE UNITED STATES, 1944-47, BY GEOGRAPHICAL REGIONS, IN NET TONS

Region	1944		1945		1946		1947	
	Coal charged	Coke produced	Coal charged	Coke produced	Coal charged	Coke produced	Coal charged	Coke produced
New England	546,799	318,434	576,911	333,217	543,627	312,598	494,456	277,342
Middle Atlantic	208,639	135,460	199,972	130,028	177,778	116,762	141,197	94,428
Michigan	86,139	57,536	72,572	48,334	56,342	38,214	39,926	26,149
Illinois-Indiana a/	42,612	24,910	42,195	25,588	29,521	18,217	26,951	16,691
Lake Dock	295,818	179,805	287,619	180,349	276,493	175,960	253,453	162,234
Southeast	230,987	140,956	191,217	119,074	124,404	75,609	122,882	78,152
Southwest, Mountain, and Pacific ..	35,488	21,531	35,625	22,656	31,950	15,975	15,955	9,580
	1,446,482	878,632	1,406,111	859,246	1,240,115	753,335	1,094,820	664,576

a/ Includes Ohio and Missouri Valley Regions.

TABLE 4. - RETORT COKE USED BY PRODUCER IN THE UNITED STATES AND SOLD IN 1947, BY STATES

State	Used by producer -					
	To make producer or water gas		For bench fuel		For other purposes	
	Net tons	Value	Net tons	Value	Net tons	Value
Alabama, Kentucky, North and South Carolina, and Virginia	17,917	$121,501	21,548	$153,009	6,274	$44,993
Colorado and Washington	2,528	26,541	3,372	24,107	443	2,527
Connecticut, Maine, and Rhode Island	23,658	250,255	18,365	188,043	1,729	12,275
Illinois, Indiana, Iowa, and Ohio	1,452	18,461	3,279	41,069	577	3,782
Massachusetts	66,688	612,553	53,276	494,366	3,147	35,592
Michigan, Minnesota, and North Dakota	6,481	58,234	13,705	136,829	3,100	33,159
New Jersey, New York, and Pennsylvania	36,198	405,123	24,238	252,518	108	892
Wisconsin	44,442	284,645	1,392	14,928	549	5,383
	199,364	1,777,313	139,175	1,304,869	15,927	138,603

State	Sold -					
	For manufacture of water gas		For other industrial use		For domestic use	
	Net tons	Value	Net tons	Value	Net tons	Value
Alabama, Kentucky, North and South Carolina, and Virginia	1,175	$11,443	- - -	- - -	33,521	$325,126
Colorado and Washington	- - -	- - -	13	$90	3,512	22,936
Connecticut, Maine, and Rhode Island	2,080	21,874	807	7,995	17,191	191,343
Illinois, Indiana, Iowa, and Ohio	- - -	- - -	- - -	- - -	11,200	126,240
Massachusetts	7,430	73,403	1,342	13,004	70,513	773,803
Michigan, Minnesota, and North Dakota	66	874	- - -	- - -	31,049	328,281
New Jersey, New York, and Pennsylvania	2,525	27,177	1,250	10,442	30,230	314,320
Wisconsin	- - -	- - -	6,600	69,764	85,450	911,003
	13,276	134,771	10,012	101,295	282,666	2,993,052

PRODUCTION AND SALES OF TAR, AMMONIA, AND CRUDE LIGHT OIL, BY STATES

The sharp decrease in coking activity at coal-gas plants in 1947 resulted in a drop of 14 percent in coal tar output from 1946. There was an active market for this material in 1947 and consequently sales exceeded production. As indicated in table 1, very little coal gas tar was sold for use as fuel and the bulk was marketed either for refining into tar products or for use as road material. Producers reported that 64 percent of all sales in 1947 was sold to refineries and the average unit value of sales for all purposes increased $0.01 per gallon, or 21 percent, over 1946.

Ammonia liquor was produced at 4 plants, and production in terms of ammonia totaled 951,100 pounds, a decrease of 25 percent from 1946. The demand for this nitrogen product was extremely heavy and sales exceeded production by 55,517 pounds. The production and sales of crude light oil, including drip and holder oil, were very small totaling 311,956 and 309,379 gallons, respectively.

A directory showing names and addresses of retort-coke producers who reported production to the Bureau of Mines in 1947 can be obtained on request to the Anthracite and Coke Section, Coal Economics Branch, Bureau of Mines, Washington 25, D. C.

36441 TABLE 5. - PRODUCTION, SALES, AND STOCKS OF CRUDE COAL TAR AT COAL-GAS PLANTS IN THE UNITED STATES IN 1947

State	Produced (gallons)		Sold			On hand December 31 (gallons)
	Total	Per ton of coal charged	Gallons	Value		
				Total	Per gallon	
Alabama, Kentucky, North and South Carolina, and Virginia	1,712,687	13.94	1,921,799	$125,330	$.065	82,902
Colorado and Washington	160,212	10.04	211,418	15,238	.072	67,357
Connecticut, Maine, and Rhode Island	1,806,169	16.01	1,920,527	108,533	.057	264,599
Illinois, Indiana, and Ohio	333,140	12.36	370,612	19,446	.052	43,013
Massachusetts	5,080,504	13.31	4,808,718	269,478	.056	1,075,427
Michigan, Minnespta, and North Dakota	1,387,275	16.42	1,462,904	62,301	.043	182,900
New Jersey, New York, and Pennsylvania	1,556,674	11.02	1,656,016	101,580	.061	82,592
Wisconsin	2,959,413	14.17	3,050,436	191,828	.063	141,317
	14,996,074	13.70	15,402,430	893,734	.058	1,940,107

TABLE 6. - PRODUCTION, SALES, AND STOCKS OF AMMONIA LIQUOR (NH_3 CONTENT) AT COAL-GAS PLANTS IN THE UNITED STATES IN 1947

State	Produced (pounds)		Sold			On hand December 31 (pounds)
	Total	Per ton of coal charged	Pounds	Value		
				Total	Per pound	
Massachusetts, New York, and Wisconsin	951,100	a/3.04	1,006,617	$25,878	$.026	54,721

a/ Calculated on coal charged at plants actually recovering.

TABLE 7. - PRODUCTION, SALES, AND STOCKS OF CRUDE LIGHT OIL a/ AT COAL-GAS PLANTS IN THE UNITED STATES IN 1947

State	Produced (gallons)		Sold			On hand December 31 (gallons)
	Total	Per ton of coal charged	Gallons	Value		
				Total	Per gallon	
Massachusetts, Rhode Island, and Virginia	311,956	b/0.91	309,379	$24,172	$.078	27,274

a/ Includes drip and holder oil. b/ Calculated on coal charged at plants actually recovering.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

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RECOVERY OF TIN AT DETINNING PLANTS IN 1947.

The recovery of secondary tin at detinning plants, as metal and in chemical compounds, gained 10 percent in 1947 over that in 1946, according to the Bureau of Mines, United States Department of the Interior. Thus, the declining trend in detinner operations, that had been evident since 1942 despite the war-time salvage program of old tin cans, was arrested by the increasing quantity of new tin-plate clippings available for treatment. Recovery of tin from new clippings and old tin-coated containers totaled 3,447 short tons in 1947, compared with 3,144 tons in 1946 and 3,981 tons in 1945. Of the 3,447 short tons of tin recovered, 3,046 tons were reclaimed as metal in the form of pigs and anodes, and 401 tons in the form of tin compounds.

All of the gain was in tin recovered from new clippings, which increased from 2,884 tons in 1946 to 3,313 tons in 1947, or 15 percent. Tin recovered from old cans dropped from 260 tons in 1946 to 134 tons in 1947, a loss of 48 percent. A total of 320,907 long tons of clean tin-plate clippings was made available to detinners last year, compared with 249,813 tons in 1946, but the quantity of old cans treated declined to only 16,741 tons in 1947, compared with 28,434 tons in the preceding year, and a peak use of 175,870 tons in 1943.

The average quantity of tin recovered per long ton of clean tin-plate scrap used declined from 23.09 pounds in 1946 to 20.65 pounds in 1947; the 1947 figure seems to indicate clearly the growing proportion of electrolytic tin-plate being produced, with the consequent thinner average coating of tin on new clippings. The average quantity of tin recovered per long ton of old tin-coated containers used further declined to 16.02 pounds in 1947, compared with 18.33 pounds in the preceding year.

In addition to the tin from tin-plate clippings and old cans, detinners recovered 98 tons of tin as metal and 80 tons of tin in compounds from the treatment of white-metal scrap and chemical residues in 1947. The recovery from comparable operations in 1946 was 30 tons of tin as metal and 8 tons of tin in compounds.

Prepared by C. E. Nighman and Herbert L. Cullen, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

(over)

Secondary tin recovered at detinning plants in the United States, 1946-47

		1946	1947
Scrap treated:			
Clean tin plate	long tons	249,813	320,907
Old tin-coated containers	long tons	28,434	16,741
		278,247	337,648
Tin recovered from new tin-plate clippings..	short tons	2,884	3,313
Tin recovered from old tin-coated containers.	short tons	260	134
		3,144	3,447
Tin recovered as metal	short tons	1/ 2,772	1/ 3,046
Tin recovered in compounds...................	short tons	372	401
		2/ 3,144	2/ 3,447
Weight of tin compounds produced	short tons	757	780
Average quantity of tin recovered per long ton of clean tin-plate scrap used	pounds	23.09	20.65
Average quantity of tin recovered per long ton of old tin-coated containers used	pounds	18.33	16.02

1/ Includes a small tonnage of pig tin of less than standard purity and, consequently, subject to further refining or alloying.

2/ Recovery from tin-plate clippings and old containers only. In addition, detinners recovered 30 tons of tin as metal and 8 tons of tin in compounds from tin-base scrap and residues in 1946, and 98 tons of tin as metal and 80 tons of tin in compounds from these sources in 1947.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

FOR RELEASE MAY 18, 1948.

MINERAL MARKET REPORTS
M.M.S. No. 1596

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

FLUORSPAR INDUSTRY IN 1947

Production, shipments, and consumption of fluorspar in the United States established peacetime records in 1947, according to the Bureau of Mines, United States Department of the Interior. Moreover, the 1947 level of production and shipments of fluorspar had been exceeded in only 1942, 1943, and 1944 and consumption in only 1942 and 1943. Imports of fluorspar into the United States were also at a high rate in 1947 but were 25 percent below the peak established in 1945. The higher level of operations in the steel and hydrofluoric-acid industries, coupled with sustained demand for fluorspar by the glass and enamel trades, were chiefly responsible for the greatly accelerated activity in fluorspar in 1947.

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Production of finished fluorspar was 343,700 short tons in 1947 compared with 277,300 tons in 1946.

Shipments of fluorspar from mines were 329,484 short tons in 1947 compared with 277,940 tons in 1946. Illinois maintained its rank as the premier producer of fluorspar in 1947 by supplying 51 percent of the total domestic shipments. Shipments from Illinois and Kentucky were 18 percent greater in 1947 than in 1946 compared with a gain of 20 percent from other producing States. Shipments of fluorspar by river or river-rail were 60,630 tons in 1947 compared with 51,428 tons in 1946.

Stocks of fluorspar at mines at the close of 1947 totaled 91,433 tons and comprised 33,101 tons of finished fluorspar and 58,332 tons of crude fluorspar (calculated to be equivalent to 29,000 tons of finished fluorspar).

Consumption of fluorspar was 376,138 short tons in 1947 compared with 303,190 tons in 1946. The steel industry continued to be the predominant user of fluorspar; it accounted for 55 percent of the total consumed in 1947 compared with 53 percent in 1946. Reversing a downward trend that had persisted for four consecutive years, the average consumption of fluorspar per ton of basic open-hearth steel produced turned upward to 5.54 pounds in 1947 compared with 5.39 pounds in 1946. The hydrofluoric-acid industry, the second largest utilizer of fluorspar, although using 20 percent more than in 1946, accounted for 27 percent of the total compared with 28 percent in 1946. Usage of fluorspar by the glass and enamel trades established all-time highs in 1947.

Prepared by Hubert W. Davis, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Fluorspar was reported consumed in 39 States and the District of Columbia in 1947, but 3 States--Illinois, Ohio, and Pennsylvania--used 207,466 tons or 55 percent of the total consumption. Pennsylvania was again the chief consuming State; it ranked first in consumption of fluorspar in both steel and glass but dropped from fourth to seventh place in hydrofluoric acid. Illinois continued to rank first as a consumer of fluorspar in hydrofluoric acid.

Fluorspar shipped from mines in the United States, 1946-47, by States

State	1946			1947		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Colorado..........	32,539	$925,867	$28.45	32,153	$950,882	$29.57
Illinois..........	154,525	5,493,642	35.55	167,157	6,148,654	36.78
Kentucky..........	63,143	1,889,454	29.92	90,256	2,713,508	30.06
New Mexico........	17,584	489,607	27.84	27,526	841,095	30.56
Arizona...........	389	7,959	20.46	1,601		
Nevada............	6,234	232,440	23.82	8,042	300,736	24.27
Texas.............	1,118			1,019		
Utah..............	2,370			1,730		
Washington........	38			------	--------	-----
	277,940	9,038,969	32.52	329,484	10,954,875	33.25

Fluorspar shipped from mines in the United States, 1946-47, by uses

Use	1946			1947		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Steel.............	134,295	$3,843,038	$28.62	165,427	$4,799,531	$29.01
Iron foundry......	4,855	137,507	28.32	4,439	133,728	30.13
Glass.............	39,837	1,306,005	32.78	40,843	1,434,905	35.13
Enamel............	7,540	262,530	34.82	8,716	315,491	36.20
Hydrofluoric acid.	79,047	3,111,291	39.36	89,667	3,662,409	40.84
Miscellaneous.....	6,730	221,001	32.84	10,103	346,532	34.30
Government stock pile............	3,907	93,800	24.01	9,109	218,600	24.00
Exported..........	1,729	63,797	36.90	1,180	43,679	37.02
	277,940	9,038,969	32.52	329,484	10,954,875	33.25

Fluorspar shipped from mines in the United States, 1946-47,
by grades and industries, in short tons

Grade and industry	1946	1947
Fluxing gravel and foundry lump:		
Ferrous	1/134,822	1/165,281
Nonferrous	1,410	1,734
Cement	661	812
Miscellaneous	175	3,489
Government stock pile	3,907	9,109
	1/140,975	180,425
Ground and flotation concentrates:		
Ferrous	1/2/5,939	1/2/6,581
Nonferrous	2,231	783
Glass and enamel	47,377	49,559
Hydrofluoric acid	78,780	89,667
Miscellaneous	625	1,288
Exported	1,729	1,180
	1/2/136,681	1/2/149,058
Acid lump:		
Ferrous	15	-
Nonferrous	2	1
Hydrofluoric acid	267	-
	284	1
Total:		
Ferrous	140,776	171,862
Nonferrous	3,643	2,518
Cement	661	812
Glass and enamel	47,377	49,559
Hydrofluoric acid	79,047	89,667
Miscellaneous	800	4,777
Government stock pile	3,907	9,109
Exported	1,729	1,180
	277,940	329,484

1/ Fluxing gravel includes (and flotation concentrates exclude) the following quantities of flotation concentrates blended with fluxing gravel: 1946, 9,129 tons; 1947, 19,110 tons.

2/ Includes pelletized gravel.

Fluorspar (domestic and foreign) consumed and in stock in the United States, 1946-47, by industries, in short tons

Industry	1946			1947		
	Consumption	Stocks at consumers' plants Dec. 31	In transit to consumers' plants Dec. 31	Consumption	Stocks at consumers' plants Dec. 31	In transit to consumers' plants Dec. 31
Basic open-hearth steel	145,631	65,341	3,005	189,773	77,820	4,488
Electric-furnace steel	14,898			19,481		
Bessemer steel	206			141		
Iron foundry	4,925	1,165	66	4,089	1,759	171
Ferro-alloys	2,044	927	-----	2,478	870	101
Hydrofluoric acid 1/	83,901	17,431	1,810	100,363	19,693	554
Primary aluminum 2/	1,417	1,182	-----	896	909	----
Primary magnesium						
Glass	39,852	7,136	1,414	42,130	7,682	692
Enamel	6,739	1,946	283	8,938	1,780	243
Cement	608	1,262	-----	811	1,263	----
Welding rod	417	181	-----	7,038	2,374	238
Miscellaneous	2,552	2,092	125			
	303,190	98,663	6,703	376,138	114,150	6,487

1/ Fluorspar used in making artificial cryolite and aluminum fluoride (aluminum raw materials) is included in the figures for hydrofluoric acid, which is an intermediate in their manufacture.

2/ Figures on consumption represent fluorspar used as a flux; see footnote 1.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary — JAMES BOYD, Director

FOR RELEASE MAY 21, 1948.

MINERAL MARKET REPORTS
M. M. S. NO. 1597.

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

TUNGSTEN IN 1947

Despite much higher prices and substantially greater demand in 1947, domestic production and shipments of tungsten concentrates declined for the fourth successive year, according to the Bureau of Mines, United States Department of the Interior. Tungsten ore and concentrates imported for consumption in 1947 were also less than in 1946.

Production and shipments of tungsten concentrates were 3,180 and 3,094 short tons (60 percent WO_3 basis), respectively, in 1947, decreases of 35 and 40 percent from 1946. Output in 1947 was obtained from many widely scattered operations in 8 States and Alaska, but 3 States--Nevada, North Carolina, and California--supplied 93 percent of the total, and 7 operators--Atolia Mining Co., Bradley Mining Co., Nevada-Massachusetts Co., Surcease Mining Co., Tulare County Tungsten Mines, Tungsten Mining Corp., and United States Vanadium Corp.--produced 92 percent of the United States total. Nevada again was the premier tungsten-producing State and North Carolina, where output was double that of 1946, ascended from fourth to second place in 1947.

Consumption of tungsten concentrates in the United States was about 8,200 short tons (60 percent WO_3 basis) in 1947 compared with 6,800 tons in 1946.

General imports (receipts) of tungsten ores and concentrates into the United States totaled 9,029,547 pounds (tungsten content), equivalent to 9,677 short tons of 60 percent WO_3 in 1947, a 35-percent gain over 1946. This quantity represents the ores and concentrates received into the United States, irrespective of final disposition. Although ores and concentrates were received from 18 foreign countries in 1947, 5--China (26 percent), Brazil (14 percent), Bolivia (12 percent), and Spain and Korea (11 percent each)--supplied 74 percent of the total.

Imports of ores and concentrates for consumption in the United States were 6,045,437 pounds (tungsten content), equivalent to 6,352 short tons of 60 percent WO_3 in 1947, a decline of 12 percent from 1946. Imports for consumption represent ores and concentrates on which the duty has been paid and which have thereby entered into the domestic commerce of the United States. China (28 percent), Brazil (15 percent), and Bolivia (13 percent) supplied 56 percent of the total. However, important quantities were also contributed by Belgian Congo and Thailand.

Prepared by Hubert W. Davis under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

In 1947, 954 short tons (60 percent WO_3) of ores and concentrates were withdrawn from warehouses for smelting, refining, and export (1,724 tons in 1946), and 867 tons (gross weight) were reexported (1,517 tons in 1946). Ores and concentrates withdrawn for smelting, refining, and export and for reexport are free of duty.

Tungsten concentrates produced and shipped in the United States, 1946-47, by States

State	Produced				Shipped from mines			
	1946		1947		1946		1947	
	Short tons 60 percent WO_3	Units	Short tons 60 percent WO_3	Units	Short tons, 60 percent WO_3	Units	Short tons 60 percent WO_3	Units
Alaska....	26	1,583	5	326	19	1,129	13	751
Arizona....	20	1,211	13	805	20	1,211	13	805
California	1,258	75,467	476	28,535	1,262	75,735	394	23,650
Colorado..	208	12,473	61	3,678	213	12,754	68	4,046
Idaho.....	538	32,310	139	8,356	641	38,458	61	3,656
Montana....	55	3,306	1	34	84	5,047	4	244
Nevada....	2,475	148,483	1,906	114,383	2,617	157,069	2,002	120,129
North Carolina	298	17,908	578	34,656	307	18,434	538	32,295
South Dakota..	1	39	-	-	1	39	-	-
Texas.....	1	45	-	-	1	45	-	-
Utah......	27	1,636	1	55	27	1,636	1	55
Washington	1	30	-	-	1	30	-	-
	4,908	294,491	3,180	190,828	5,193	311,587	3,094	185,631

Tungsten ore and concentrates imported into the United States, 1946-47, by countries

(Source: U. S. Department of Commerce)

Country	General imports		Imports for consumption		
	Gross weight (pounds)	Tungsten content (pounds)	Gross weight (pounds)	Tungsten content (pounds)	Value
1946					
Argentina	263,118	141,480	265,755	145,178	$120,146
Australia	450,982	253,510	23,677	13,729	10,866
Belgian Congo	589,071	307,591	789,544	426,908	390,023
Bolivia	6,029,435	2,488,924	5,842,279	2,525,312	2,097,988
Brazil	2,319,885	1,253,565	3,297,648	1,816,486	1,567,750
British East Africa	19,139	10,190	-	-	-
Canada	245,906	111,692	-	-	-
China	358,255	186,822	162,628	82,514	77,442
Cuba	-	-	16,968	8,544	8,657
France	551	37	551	37	91
Mexico	104,966	49,814	66,253	31,976	37,783
Netherlands	54,880	31,386	54,880	31,386	25,174
Netherlands Indies	321,809	178,487	222,525	123,075	107,251
New Zealand	35,640	18,577	301,156	154,366	144,505
Peru	433,348	243,583	552,052	307,158	258,894
Portugal	297,502	150,149	-	-	-
Southern Rhodesia	967,663	488,701	1,735,472	888,599	838,150
Spain	398,384	194,557	227,784	113,526	107,187
Thailand	220,374	113,596	178,883	92,217	41,529
Union of South Africa	249,064	127,820	62,322	33,356	25,755
United Kingdom	893,509	460,618	135,385	75,071	69,938
	14,253,481	6,811,099	13,935,762	6,869,438	5,929,129
1947					
Argentina	624,902	343,952	605,104	306,098	248,209
Australia	61,801	31,521	415,524	222,994	124,114
Belgian Congo	983,357	550,328	956,099	534,343	516,543
Bolivia	2,857,025	1,093,463	2,040,934	829,062	688,069
Brazil	2,163,454	1,225,435	1,584,420	905,704	840,863
British East Africa	50,347	26,686	38,052	19,907	16,575
British Malaya	-	-	8,649	4,850	4,590
Canada	717,920	175,679	296,157	150,914	126,901
Chile	106,200	58,613	116,726	63,387	61,590
China	4,287,934	2,341,089	3,019,317	1,677,786	1,730,917
Cuba	-	-	100	28	24
Korea (Chosen)	1,921,375	953,711	-	-	-
Mexico	326,994	151,926	92,510	48,700	45,240
Netherlands Indies	141,934	80,502	198,057	110,018	109,702
New Zealand	11,200	6,297	11,200	6,297	4,565
Peru	35,274	19,024	199,117	78,610	70,976
Portugal	322,736	154,523	222,018	107,084	104,130
Spain	2,301,519	1,031,076	226,638	114,472	101,987
Southern Rhodesia	-	-	383,572	203,254	193,410
Thailand (Siam)	1,633,692	778,092	947,460	533,827	480,517
Union of South Africa	14,800	7,630	203,052	109,869	102,915
United Kingdom	-	-	39,034	18,233	17,400
	18,562,464	9,029,547	11,603,740	6,045,437	5,589,237

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MINERAL INDUSTRY SURVEYS
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
J. A. KRUG, Secretary
JAMES BOYD, Director

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FOR RELEASE MAY 22, 1948

MINERAL MARKET REPORT

SLATE INDUSTRY IN 1947

In 1947 slate production in the United States increased 15 percent in quantity and 32 percent in value over 1946, according to the Bureau of Mines, United States Department of the Interior. The tonnage of slate sold was the greatest in the history of the industry - 876,010 short tons, and the total value of slate during the year - $11,685,554, was surpassed only in the four years 1923-26. Granules and flour held the dominant place in the industry from the standpoint of both tonnage and value of production. Prepared roofing has cut deeply into the market formerly held by split slate shingles.

There were 15 more slate producers operating in 1947 than in 1946. Ten were in the Vermont-Maine area, 2 in New York, and 1 each in California, Georgia, and Pennsylvania.

Sales of dimension slate, which includes all slate products except granules and flour, rose 17 percent in quantity and 48 percent in value, compared with 1946. Roofing slate output totaled 170,590 squares valued at $3,094,780, an increase of 16 percent in quantity and 56 percent in value. Mill stock sales increased 7 percent in quantity and 40 percent in value. The average value per square foot reached an all-time high of 57 cents, 13 cents more than in 1946. In this group of products, slate for electrical use, structural and sanitary slate, and billiard table tops made substantial gains, whereas the output of school slates, grave vaults and covers, blackboards and bulletin boards decreased. Slate for flagstones and other miscellaneous uses increased 21 percent in quantity and 33 percent in value, compared with 1946.

Granules and flour used principally in the manufacture of roofing rose to a new high in 1947. The average sales value of granules and flour increased to $9.96 and $4.10 per short ton, respectively, a 22-percent increase in both cases.

The following table presents the salient statistics of the slate industry in the United States in 1946 and 1947.

Prepared by Lawrence Houk, and May G. Downey, under the supervision of G. W. Josephson, Acting Chief, Nonmetal Economics Branch, Economics & Statistics Division.

Salient statistics of the slate industry in the United States, 1946—47

	1946			1947				
	Quantity			Quantity			Percent of change in	
	Unit of measurement	Approximate equivalent short tons	Value	Unit of measurement	Approximate equivalent short tons	Value	Quantity (Unit as reported)	Value
Domestic production (sales by producers:	Squares			Squares				
Roofing slate	146,790	56,240	$1,982,928	170,590	64,350	$3,094,780	+16	+56
Mill stock:	Sq. ft.			Sq. ft.				
Electrical slate.....	389,210	2,760	366,039	486,870	3,650	486,687	+25	+33
Structural and sanitary slate......	448,520	3,530	222,675	523,360	4,090	308,874	+17	+39
Grave vaults and covers.	145,910	1,330	58,671	40,560	370	23,006	-72	-61
Blachboards & bulletin boards.....	808,710	2,090	240,520	786,130	2,040	373,421	-3	+55
Billiard-table tops.	292,740	2,180	135,217	424,940	3,160	243,856	+45	+80
School slates	1/286,730	260	9,462	1/273,160	240	8,991	-5	-5
Total mill stock....	2,371,820	12,150	1,032,584	2,535,020	13,550	1,444,835	+7	+40
Flagstones, etc. 2/.....	4,322,220	27,860	403,990	5,208,820	34,610	537,705	+21	+33
Total slate as dimension stone.......	- - - - -	96,250	3,419,502	- - - - -	112,510	5,077,320	+17	+48
Granules and flour.......	- - - - -	663,520	5,424,604	- - - - -	763,500	6,608,234	+15	+22
Grand total domestic production..	- - - - -	759,770	8,844,106	- - - - -	876,010	11,685,554	+15	+32

1/ Square feet approximate. Number of pieces: 1946, 535,950; 1947, 510,340.
2/ Includes slate used for walkways, stepping stones, and miscellaneous uses.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary

James Boyd, Director

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MINERAL MARKET REPORT
MMS NO. 1599

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FULLER'S EARTH PRODUCTION IN 1947

According to the reports of producers to the Bureau of Mines, production of fuller's earth in the United States in 1947 totaled 329,068 short tons valued at $4,660,614, a 10-percent increase in quantity over 1946. The quantity produced in 1947 was only 2 percent less than in the record year, 1930 (335,644 tons). The increase in fuller's earth production in 1947 was due largely to recent new uses for the commodity, namely, absorbent uses for oily floors, and insecticides. Decreases of 4 percent and 9 percent, respectively, were reported for mineral oils or greases and vegetable oils.

Producers reported that 59 percent of the total tonnage was consumed in mineral oil refining; absorbent uses 21 percent, vegetable oils 7 percent, rotary drilling mud 5 percent, insecticides 4 percent; other filtering and clarifying 3 percent; and the remainder in binder, chemicals, foundries, and various other uses.

Increases in output were reported from Florida, Georgia, Illinois, Nevada, and Tennessee. The Georgia-Florida district produced 51 percent of the total tonnage; Texas, which reported the largest output of any State, furnished 31 percent of the total. The average value rose from $12.39 in 1946 to $14.16 in 1947.

Fuller's earth sold or used by producers in the United States, 1945-47, by States

State	1945		1946		1947	
	Sh. tons	Value	Sh. tons	Value	Sh. tons	Value
Florida & Georgia	134,401	$1,939,035	144,214	$2,100,652	168,557	$2,699,660
Illinois.........	43,664	403,084	33,134	296,637	37,740	388,955
Texas............	103,076	931,878	110,693	1,157,892	102,901	1,199,726
Other States 1/..	15,227	189,916	10,711	147,812	19,870	372,273
	296,368	3,463,913	298,752	3,702,993	329,068	4,660,614

1/ Includes California, Mississippi (1947), Nevada, Tennessee, and Utah.

Prepared by R. Metcalf and A. Linn, under the supervision of G. W. Josephson, Asst. Chief, Nonmetal Economics Branch, Economics and Statistics Division.

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MINERAL INDUSTRY SURVEYS
UNITED STATES DEPARTMENT OF THE INTERIOR
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J. A. KRUG, Secretary
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For release May 22, 1948.

MINERAL MARKET REPORTS
MMS NO. 1600

TITANIUM IN 1947

Domestic production of ilmenite and rutile in 1947 was greater than ever before, according to the Bureau of Mines, United States Department of the Interior. Shipments of ilmenite likewise established a new record, but of rutile were 31 percent below the all-time high rate for 1946.

Ilmenite. - Despite the further expansion of titanium pigments plant capacity in 1947 and new peak rates of pigments production and shipments, for the fourth successive year, a substantial part of the demand could not be filled. Domestic ilmenite production was at a new high rate, 19 percent over 1946 and 9 percent above the previous peak in 1945. Shipments, likewise, established a new high record in 1947. Receipts of ilmenite from abroad also established an all-time peak, being 27 percent higher than in 1946, and 7 percent greater than the previous record in 1939 before the war cut off normal trade movements. Inventories at the end of 1947 were greater than ever before because of the record quantities of concentrates made available from domestic and foreign sources and despite the peak consumption of ilmenite. Inventories would support the 1947 peak consumption rate for almost a year, unaided by new production or imports.

Production and shipments of ilmenite in the United States, 1946-47

Year	Ilmenite			
	Production (Short tons)	Shipments		
		Gross weight (Short tons)	TiO_2 content (Short tons)	Value
1946	282,447	282,708	130,624	$4,878,917
1947	336,533	336,061	157,328	5,029,490

The National Lead Co.'s mine at Tahawus, N. Y., continued to be the world's leading ilmenite producer, achieving its greatest annual production to date in 1947. Others were the Rutile Mining Co. of Florida, near Jacksonville, Fla.; Yadkin Valley Ilmenite Co., Finley, N. C.; and Calco Chemical Division, American Cyanamid Co., Piney River, and American Rutile Corp., Roseland, both in Virginia. In December, E. I. du Pont de Nemours & Co. Inc. signed a long-term lease for State-owned ilmenite-bearing property near Starke, Florida, to provide a large domestic source of supply of ore. Large-scale mining operations were expected to get under way promptly.

Prices for ilmenite changed little in 1947 following a $9 to $10 drop in 1946. They were quoted nominally at $19-$20 a long ton for ilmenite containing 57-60 percent TiO_2, f.o.b. Atlantic seaboard, according to grade and impurities, when the year ended as when it began, having declined to a low point of $17-$19 in midyear.

Prepared by Helena M. Meyer, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Rutile. - Rutile production continued to break records in 1947, rising 15 percent above the previous peak in 1946, but shipments fell 31 percent below the previous all-time record in 1946. Welding-rod coatings continued to use most of the rutile consumed. Production exceeded consumption, by close to 900 tons, so that statistically imports were entirely in excess of domestic requirements in 1947. Imports were the largest since 1943.

Rutile prices continued to be quoted nominally at 8-10 cents a pound, guaranteed minimum 94 percent concentrate.

Production and shipments of rutile in the United States, 1946-47

Year	Rutile			
		Shipments		
	Production (Short tons)	Gross weight (Short tons)	TiO_2 content (Short tons)	Value
1946	7,453	7,514	7,046	$ 996,989
1947	8,562	5,157	4,813	533,548

Consumption of ilmenite and rutile. - Data on consumption, by uses, are contained in the following table.

Consumption of ilmenite and rutile in the United States, 1946-47, by products, in short tons

Product	Ilmenite		Rutile	
	Gross weight	Estimated TiO_2 content	Gross weight	Estimated TiO_2 content
1946:				
Pigments (manufactured titanium dioxide) 1/	399,042	200,352	—	—
Welding-rod coatings 1/	105	57	5,990	5,600
Alloys and carbide	4,685	2,025	1,035	966
Ceramics	—	—	75	72
Miscellaneous 2/	451	229	34	32
Total	404,283	202,663	7,134	6,670
1947:				
Pigments (manufactured titanium dioxide) 1/	473,154	248,231	—	—
Welding-rod coatings 1/	144	74	6,425	5,907
Alloys and carbide	5,972	2,431	1,131	1,050
Ceramics	—	—	102	95
Miscellaneous 2/	254	123	34	31
Total	479,524	250,859	7,692	7,083

1/ "Pigments" include all manufactured titanium dioxide, consumption of which in welding-rod coatings was 938 tons in 1946 and 1,257 tons in 1947.
2/ Consists of ilmenite used as a steel flux and rutile used in lamp-electrode coatings and as a steel deoxidizer.

Stocks of ilmenite and rutile. - Details covering stocks of ilmenite and rutile in the United States are covered by the following table.

Stocks of titanium concentrates in the United States at end of year, 1946-47, in short tons

Stocks	1946				1947			
	Ilmenite		Rutile		Ilmenite		Rutile	
	Gross weight	Estimated TiO_2 content	Gross weight	Estimated TiO_2 content	Gross weight	Estimated TiO_2 content	Gross weight	Estimated TiO_2 content
Mine..........	1,309	613	533	501	1,706	776	3,953	3,687
Distributors 1/	3,919	2,155	8,488	7,979	5,684	3,126	8,642	8,123
Consumers.....	375,998	195,541	1,896	1,521	2/446,052	2/229,128	1,342	1,232
Government 3/.	—	—	3,891	3,658	—	—	—	—
Total.......	381,226	198,309	14,808	13,659	2/453,442	2/233,030	13,937	13,042

1/ Includes ilmenite and rutile content of mixed zirconium-titanium concentrates.
2/ A large quantity previously counted as stocks was written off company books in 1947.
3/ Excludes stocks in the Government strategic stock pile.

Imports of ilmenite and rutile. - Receipts of ilmenite in 1947 surpassed all previous annual totals and those of rutile were the largest since 1943. Details were as follows:

Titanium concentrates1/ imported for consumption in the United States, 1946-47, by countries, in short tons

Country of origin	1946	1947
ILMENITE		
Australia 2/	——	6,720
Brazil	2	1
Canada	1,250	7,122
Ceylon	——	——
India and Dependencies	218,623	262,503
Norway	21,077	30,026
Total as reported	240,952	306,372
Australia: In "zirconium ore" 2/	1,388	1,363
Grand total	242,340	307,735
Value of "As reported"	$1,440,112	$1,791,020
RUTILE		
Australia 2/	4,377	7,460
Brazil	31	——
Cameroon (French) 4/	——	3
India and Dependencies	——	113
Total as reported	4,408	7,576
Australia: In "zirconium ore" 2/	1,456	6,731
Grand total	5,864	14,307
Value of "As reported"	$213,795	$468,810

1/ Classified as "ore" by the U. S. Department of Commerce.
2/ Most of the imports of titanium from Australia in 1946-47 were in mixed zircon-rutile-ilmenite concentrates. Totals of mixed concentrates are derived by addition of the U. S. Department of Commerce figures for imports of ilmenite, rutile, and "zirconium ore" from Australia. These totals are apportioned by the Bureau of Mines (on the basis of surveys of importers) into the three component minerals. The excess quantities of ilmenite and rutile over the quantities reported by the U. S. Department of Commerce in those specific categories are entered as "In 'zirconium ore.'"
3/ Includes 309 tons not recovered from mixed concentrates.
4/ Includes quantities reported by the U. S. Department of Commerce as originating in French Equatorial Africa, from which no rutile production has been recorded.

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MINERAL MARKET REPORT
M.M.S. NO. 1601

BENTONITE IN 1947

Topping by 27 percent the 1946 all-time high, the production of bentonite rose to a new peak of 763,889 short tons valued at $5,949,586, according to the Bureau of Mines, United States Department of the Interior. This tonnage was 9 times the output reported in 1930 (82,593 tons). Eight States reported production during 1947, compared with 11 States in 1946.

The major markets for bentonite, the foundry and petroleum industries, consumed nine-tenths of the total tonnage. Filtering and decolorizing oils accounted for 32 percent; rotary drilling mud 31 percent; foundry sand bond 27 percent; and the remainder (10 percent) was consumed in a wide variety of other uses.

The Wyoming-South Dakota area furnished 58 percent of the total tonnage in 1947, 34 percent was produced in Wyoming, and 24 percent in South Dakota. Texas supplied 2 percent, California 1 percent, and the remainder came from Mississippi, Arizona, Montana, and Utah.

Bentonite sold or used by producers in the United States, 1945-47, by States

State	1945		1946		1947	
	Sh. tons	Value	Sh. tons	Value	Sh. tons	Value
California.....	16,187	$145,424	(1)	(1)	5,328	$55,500
South Dakota...	178,374	1,202,555	186,707	1,394,378	186,450	2,070,659
Texas..........	24,503	247,940	21,576	192,891	18,628	146,187
Wyoming........	199,293	1,686,912	212,530	1,988,918	259,084	2,583,255
Other States 2/	155,641	487,794	180,615	785,227	294,399	1,093,985
Total......	573,998	3,770,625	601,428	4,361,414	763,889	5,949,586

1/ Included with "Other States".
2/ Includes Arizona, Mississippi, Montana, and Utah (1945-47); Colorado (1945-46); and California, Nevada, and Oklahoma (1946).

Prepared by R. W. Metcalf and A. Linn, under the supervision of G. W. Josephson, Acting Chief, Nonmetal Economics Branch, Economics and Statistics Division.

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MINERAL MARKET REPORT
MMS NO. 1602

METAL MINING IN ARKANSAS, KANSAS, MISSOURI, AND OKLAHOMA, 1947
FINAL ANNUAL FIGURES

A 21 percent decrease in zinc production in the Tri-State zinc-lead district (Kansas-Missouri-Oklahoma) was the principal change in 1947 from 1946 in the mine outputs of lead and zinc in Arkansas, Kansas, and Oklahoma and of silver, copper, lead, and zinc in Missouri, according to the Denver office of the Bureau of Mines, United States Department of the Interior. The Tri-State decrease in zinc output resulted from the closing of marginal mines and tailing reclamation mills after the Premium Price Plan expired June 30. Lead mining and exploration in all 4 states were stimulated by a higher lead price than in any previous year on record, but the total output of recoverable lead decreased 3 percent from 1946, as the average grade of lead ore treated in Southeastern Missouri declined, and much development work was necessary to replenish ore reserves drawn upon during the war. The output of silver, a byproduct of lead mining in Southeastern Missouri, increased 35 percent. The copper production, which also came from Southeastern Missouri and was largely incidental to the mining of lead, decreased 5 percent.

Final figures for 1947 show a total production in the four States (in terms of recoverable metals) of 153,838 short tons of lead and 109,651 tons of zinc compared with 159,256 and 139,574 tons, respectively, in 1946. The Missouri output of copper was 1,760 tons and silver 93,600 fine ounces in 1947, compared with 1,857 tons and 69,401 ounces in 1946.

Output of lead by districts in 1947 was: Southeastern Missouri, 129,516 tons; Tri-State district, 24,239 tons; Central Missouri, 65 tons; and Arkansas, 18 tons.

Zinc output was: Tri-State district, 109,338 tons; Southeastern Missouri, 295 tons; and Arkansas, 18 tons.

Despite the large decrease in zinc production, the total value of the 4 metals greatly enhanced by the sharp increase in the lead price, was slightly higher than in 1946. The value of the lead was $44,305,344, zinc $25,219,730, copper $739,200, and silver $84,708 - a total of $70,348,982 compared with $69,431,608 in 1946. Average metal prices used in 1947, which for copper, lead, and zinc include the increment from premiums paid to mine operators by the Office of Metals Reserve, were $0.905 for silver, $0.210 for copper, $0.144 for lead, and $0.115 for zinc; in 1946 the prices were $0.808 for silver, $0.162 for copper, $0.109 for lead, and $0.122 for zinc.

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE.

Prepared by A. J. Martin, Denver Office, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Mine production of lead and zinc in Arkansas, Kansas, Missouri and Oklahoma, by States, 1946-47, in terms of recoverable metals

	Lead				Zinc			
	1946		1947		1946		1947	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
Arkansas..........	2	$436	18	$5,184	85	$20,740	18	$4,140
Kansas............	6,445	1,405,010	7,285	2,098,080	47,703	11,639,532	41,497	9,544,310
Missouri..........	139,112	30,326,416	132,246	38,086,848	22,234	5,425,096	17,074	3,927,020
Oklahoma..........	13,697	2,985,946	14,289	4,115,232	69,552	16,970,688	51,062	11,744,260
	159,256	34,717,808	153,838	44,305,344	139,574	34,056,056	109,651	25,219,730

Southeastern and Central Missouri. - Production of recoverable lead in Southeastern Missouri totaled 129,516 tons in 1947 compared with 135,796 tons in 1946.

In St. Francois County the St. Joseph Lead Co., the principal producer, continued to operate four large groups of mines and four mills - the Bonne Terre, Desloge, Federal and Leadwood. The mills together had a daily capacity of more than 22,000 tons. The ore treated was somewhat lower in grade than that milled in 1946. The Company did much development work on the four groups to replenish ore reserves; in addition, it unwatered and equipped one of the old mines at Doe Run and sank a new shaft in that area. To supplement the mill feed of crude ore during the period of intensified development, a considerable tonnage of tailings resulting from old operations was remilled.

Mines and mills operating in Madison County in 1947 were: The Mine La Motte, operated by the St. Joseph Lead Co.; the Madison group of the St. Louis Smelting & Refining Co. (producing lead and lead-copper ore); the Ruth, operated by the Park City Consolidated Mines Co., and the Catherine-Fleming, operated by the Fredericktown Lead Co.

In Jefferson County the Fredericktown Lead Co. took over the Valle Mine property in May and operated it the rest of the year. In Central Missouri the D. F. & H. Mining Co. operated the Glover open-pit lead mine at Russellville, Cole County, part of the year.

Tri-State district (Oklahoma, Kansas, Southwestern Missouri). - Production of zinc concentrates in the Tri-State district totaled 204,068 tons and lead concentrates 32,006 tons in 1947 compared with 258,705 and 30,650 tons, respectively, in 1946. The value of the 1947 output (including Government premiums paid on production from January through June and over-lapping payments on 1946 production) was $21,792,921 for zinc concentrates and $6,090,622 for lead concentrates compared with $30,079,745 and $5,038,018, respectively, in 1946.

The quoted price of zinc concentrates at Joplin advanced September 1 from $64 a ton (which prevailed from January through August) to $70.35, and the price paid by the Eagle-Picher Mining & Smelting Co. for concentrates made from ore treated in its Central mill advanced to $72.00 a ton; both prices held the rest of the year. The lead concentrate price advanced by stages from $160.50 January 4 to $195.65 on March 8, and held at that level through December. Federal premium payments on January-June production, including over-lapping payments on 1946 production received in 1947, totaled $8,463,806 for zinc and $206,831 for lead. Exploration premiums reported by the mine operators totaled $131,685 for zinc and $3,876 for lead.

After the Premium Price Plan expired June 30 more than half the district mines and all but 2 of the tailing mills shut down. The production rate for zinc during July, August, and September dropped to the lowest rate for a 3-months' period since the summer of 1932. Some of the mines and mills that closed resumed operations later and the rate increased in the last quarter, when the monthly rate averaged 53 percent of the January-to-June rate. The total production of zinc concentrates in the last half of 1947 was 65,632 tons compared with 138,436 tons in the first half. Lead concentrate production was 13,459 tons from July to December compared with 18,547 tons from January to June.

The five leading producers of zinc concentrates in the Tri-State district, in order of output, were: Eagle-Picher Mining & Smelting Co., St. Louis Smelting & Refining Co., Kansas Explorations, Inc., F. W. Evans Mines, and Tri-State Zinc, Inc. The lead producers ranked as follows: Eagle-Picher, Federal Mining & Smelting Co., Kansas Explorations, Melrose Mining Co., and Marcia K Mining Co.

Arkansas. - Small lots of ore, yielding (in recoverable metals) a total of 18 tons each of zinc and lead, were shipped from Boone, Marion, Newton, Searcy, and Pulaski Counties in 1947.

Mine production of silver, copper, lead and zinc
in Arkansas, Kansas, Missouri, and Oklahoma in 1947, by months
in terms of recovered metals

Month	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January.......	7,732	154	14,135	11,986
February......	10,130	145	13,192	11,176
March.........	8,270	118	13,935	12,406
April.........	7,800	139	13,480	12,493
May...........	7,030	134	13,071	12,993
June..........	6,764	141	12,870	13,605
July..........	7,300	121	11,927	3,981
August........	8,450	149	11,848	5,517
September.....	8,090	154	11,810	5,798
October.......	7,630	164	13,287	6,359
November......	6,560	159	11,573	6,318
December......	7,844	182	12,710	7,019
Total 1947..	93,600	1,760	153,838	109,651

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MINERAL MARKET REPORTS
MMS NO. 1603

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

METAL MINING IN SOUTH DAKOTA AND WYOMING, 1947 - FINAL ANNUAL FIGURES

South Dakota.--Production of gold by mines in South Dakota increased 30 percent in 1947 over 1946 and amounted to 68 percent of the average for the five pre-war years 1937 to 1941, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. Shortage of underground labor continued to be the principal deterrent to capacity operation of the gold mines. As usual, the Homestake mine at Lead, Lawrence County, contributed the bulk of the gold output. The Bald Mountain mine at Trojan was also an important producer. The silver output, which also increased in 1947, was incidental to the mining of gold, lead and zinc. Zinc-lead ore was produced by the Belle Eldridge mine near Deadwood, which was under development and made test mill runs.

The South Dakota production in 1947 (in terms of recoverable metals) was 407,194 fine ounces of gold, 111,684 ounces of silver, 16,000 pounds of lead, and 38,000 pounds of zinc. All the production came from the three mines in Lawrence County (already mentioned) except 2 ounces of gold from the Western Bell mine in Pennington County. In 1946 no lead or zinc was produced in the State; the output of gold was 312,247 ounces and silver 86,901 ounces.

At average prices of $35 a fine ounce of gold, $0.905 a fine ounce of silver, $0.144 a pound of lead, and $0.115 a pound of zinc, the value of the South Dakota production of gold in 1947 was $14,251,790, silver $101,074, lead $2,304, and zinc $4,370--a total of $14,359,538. In 1946 the prices were $35 for gold, and $0.808 for silver, and the value of the gold was $10,928,645 and the silver $70,216--a total of $10,998,861.

Prepared by A. J. Martin, Denver Office, Metal Economics Branch, Economics and Statistics Division.

Wyoming.--The only significant activity in gold mining in Wyoming in 1947 was in the South Pass district, Fremont County. Of the 1,486 fine ounces of gold produced during the year, 1,455 ounces (98 percent) came from the Carissa mine in this district. The State output of silver was 95 fine ounces, of which 84 ounces came from the Carissa mine. No recoverable copper, lead, or zinc was produced in the State in 1947, and no lead or zinc in 1946. The output of gold in 1946 was 105 ounces, silver 26 ounces, and copper 2,000 pounds.

The value of the gold and silver produced in Wyoming in 1947 was $52,010 and $86, respectively, a total of $52,096. In 1946 the value of the gold was $3,675, silver $21, and copper $324, a total of $4,020.

Mine production of gold, silver, lead, and zinc in South Dakota, 1947, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Lead (pounds)	Zinc (pounds)
January	36,076	9,334	—	—
February	33,040	9,393	—	—
March	34,039	11,040	—	—
April	38,566	10,955	—	—
May	31,806	7,687	—	—
June	30,162	8,891	—	—
July	33,971	9,990	—	—
August	32,884	9,773	—	—
September	39,867	10,251	—	—
October	35,537	9,476	10,000	—
November	26,430	7,200	—	—
December	34,816	7,694	6,000	38,000
Total: 1947	407,194	111,684	16,000	38,000
1946	312,247	86,901	—	—

Mine production of gold and silver in Wyoming, 1947, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)
January	--	--	--
February	40	3	--
March	96	4	--
April	81	4	--
May	82	4	--
June	212	14	--
July	296	26	--
August	321	17	--
September	329	20	--
October-November	--	--	--
December	29	3	--
Total: 1947	1,486	95	--
1946	105	26	2,000

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MINERAL MARKET REPORTS
MMS NO. 1604

PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE - FINAL ANNUAL FIGURES

METAL MINING IN TEXAS, 1947 - FINAL ANNUAL FIGURES

The mine production of recoverable gold, silver, copper, lead, and zinc in Texas in 1947 was valued altogether at $50,214 compared with $56,950 in 1946, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. Of the total value in 1947, $22,464 was in lead, the output of which increased from 94,000 pounds (value $10,246) in 1946 to 156,000 pounds in 1947. There were decreases in production of silver and zinc and increases in gold and copper. The outputs of these four metals in 1947 were as follows: Gold, 45 ounces valued at $1,575; silver, 20,547 ounces valued at $18,595; copper, 12,000 pounds valued at $2,520; and zinc, 44,000 pounds valued at $5,060. In 1946 the outputs were: Gold, 9 ounces (value $315) silver, 42,922 ounces ($34,681); copper, 6,000 pounds ($972); and zinc, 88,000 pounds (value $10,736).

Average metal prices in 1947 were $35 for gold, $0.905 for silver, $0.210 for copper, $0.144 for lead, and $0.115 for zinc compared with 1946 prices of $35 for gold, $0.808 for silver, $0.162 for copper, $0.109 for lead, and $0.122 for zinc.

Eight small-scale operations in Culberson, Hudspeth, and Presidio Counties contributed to the output of two or more of the five metals in 1947. Most of the gold was recovered from lead-silver ore from the Carr mine at Shafter, Presidio County. The principal producers of silver were the Presidio and Carr mines in Presidio County and the Hazel near Van Horn, Culberson County. The Hazel mine also produced slightly more than half the State copper output; the rest came largely from the LC & SF Grant near Van Horn and the Carr mine in Presidio County. The lead output came largely from the Carr and Silver Dome mines in Presidio County and the Bonanza zinc-lead mine

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Prepared by A. J. Martin, Denver Office, Metal Economics Branch, Economics and Statistics Division.

near Sierra Blanca, Hudspeth County. The Bonanza was the only producer of zinc in the State. Other producers of more than a ton of lead were the LC & SF Grant (Geaslin & Mayfield) at Van Horn, and the Silver Dome (Marfa Mining Co.), Last Chance, and Presidio mines in Presidio County.

Mine production of gold, silver, copper, lead, and zinc in Texas in 1947, by months, and in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January........	2	126	2,000	4,000	—
February.......	10	6,185	4,000	19,000	18,000
March..........	5	1,760	2,000	18,000	10,000
April..........	5	5,782	2,000	23,000	16,000
May............	—	2,067	—	—	—
June...........	—	1,754	—	—	—
July...........	—	13	2,000	5,000	—
August.........	10	643	—	14,000	—
September......	1	50	—	11,000	—
October........	9	582	—	20,000	—
November.......	2	1,300	—	20,000	—
December.......	1	285	—	22,000	—
Total: 1947....	45	20,547	12,000	156,000	44,000
1946....	9	42,922	6,000	94,000	88,000

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FOR IMMEDIATE RELEASE: MAY 25, 1948 MINERAL MARKET REPORT NO. MMS 1605

CARBON BLACK PRODUCTION AND SALES REACH NEW PEAKS IN 1947.

Although carbon black production in 1947 increased 6 percent over the 1946 record to 1,318,965,000 pounds, it was below total sales which increased 50,020,000 pounds to 1,319,760,000 pounds.

Furnace black production was greater than that of contact black for the second consecutive year - 664,999,000 pounds compared with 653,966,000 pounds of contact types. Comparative figures for 1946 are 625,312,000 and 619,109,000 pounds respectively.

Production in the Texas Panhandle increased 6 percent over the 1946 record to 633,250,000 pounds, but its share of the U. S. total remained at 48 percent as in 1946. Texas contributed 68 percent of U. S. total production compared with 67 percent in 1946, owing to expansion outside of the Panhandle.

A gain of 47,991,000 pounds in exports above the 1946 record to 319.076.000 pounds was the principal factor in increased total sales in 1947. Minor expansion of sales to rubber and ink manufacturers accompanied declines in sales to paint and miscellaneous industries. Of domestic sales 94 percent went to rubber companies, 3 percent to ink companies, 1 percent to paint companies, and 2 percent was used for miscellaneous purposes. Total sales increased 4 percent in 1947, compared with an increase of 24 percent in 1946 over 1945.

Producers' stocks of contact-type carbon black at the plants were 17,006,000 pounds on January 1, 1947, but declined to 8,619,000 pounds at the end of the year, the lowest inventory recorded since 1943. Producers' stocks of furnace blacks decreased from January through May, but increased through the remainder of the year, reaching 66,493,000 pounds on December 31, compared with 59,222,000 on January 1, 1947. Stocks of furnace blacks have increased annually since 1943.

The average yield of carbon black per thousand cubic feet of gas used increased from 2.44 pounds in 1946 to 2.51 in 1947, reflecting increased production of furnace blacks which have considerably higher yields than the contact types. The total quantity of natural gas used in 1947 was 484,882 million cubic feet compared with 478,349 million in 1946. The average value per thousand cubic feet of gas increased from 3.02 cents in 1946 to 3.57 in 1947. Over 31 million gallons of liquid hydrocarbons were used in 1947 in addition to the gas.

The average value at the plants of both contact and furnace type blacks increased 0.53 cent per pound in 1947 over 1946 to 5.35 cents.

In all, 63 plants and 21 operators were active in 1947 compared with 60 plants and 22 operators in 1946. One new furnace plant and two new channel plants were operated in Texas. One channel plant in Texas was shut down and one in Kansas that was shut down during 1946 was put on production in 1947.

Tables prepared by H. Backus under the supervision of F. S. LOTT, Chief, Petroleum Economics Branch, Economics and Statistics Division.

Salient statistics of carbon black produced from natural gas in the U.S.,1946-47.

	1946	1947
Number of producers reporting....................	22	21
Number of plants...........................	60	63
Quantity produced:		
By States and districts:		
Louisiana...........................pounds.	191,857,000	190,252,000
Texas:		
Panhandle district.................do....	1/ 596,678,000	1/ 633,250,000
Rest of State......................do....	234,172,000	262,523,000
Total Texas.....................do....	830,850,000	895,773,000
Other States (Calif., Kans.,N.Mex.,Okla.)do.	221,714,000	1/ 232,940,000
Total United States...................do.	1/1,244,421,000	1/1,318,965,000
By processes:		
Contact processes.........................do.	619,109,000	653,966,000
Furnace processes.........................do.	1/ 625,312,000	1/ 664,999,000
Quantity sold:		
Domestic:		
To rubber companies.......................do.	941,464,000	943,580,000
To ink companies..........................do.	29,561,000	32,260,000
To paint companies........................do.	9,312,000	8,137,000
For miscellaneous pruposes................do.	18,318,000	16,707,000
Total................................do.	998,655,000	1,000,684,000
Exports...................................do.	271,085,000	319,076,000
Total sales...............................do.	1,269,740,000	1,319,760,000
Losses....................................do.	458,000	321,000
Stocks held by producers Dec. 31:		
Contact types.........................do.	17,006,000	8,619,000
Furnace types.........................do.	59,222,000	66,493,000
Total.............................do.	76,228,000	75,112,000
Value at plants of carbon black produced:		
Total.....................................	$ 59,988,000	$ 70,639,000
Average per pound......................cents	4.82	5.35
Estimated quantity of natural gas used M cu. ft.	478,349,000	484,882,000
Average yield per M. cu. ft. ....pounds	2.44	2.51
Average value per M. cu. ft. ....cents	3.02	3.57

1/ Includes carbon black produced from liquid hydrocarbons.

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MINERAL MARKET REPORTS
MMS NO. 1606

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

METAL MINING IN WASHINGTON, 1947 - FINAL ANNUAL FIGURES

Lead output in Washington in 1947 soared 79 percent above that in 1946 and was the highest in any peacetime year, according to the Salt Lake Office of the Bureau of Mines, United States Department of the Interior. Zinc production was 22 percent greater than in 1946 and likewise reached the highest figure for any peacetime year; silver yield was up 11 percent. Production of copper however dropped 51 percent, and gold 32. The total value of the five metals rose less than 4 percent - - from $6,886,748 in 1946 to $7,147,798 in 1947. Of the total value in 1947, zinc contributed 44 percent; lead 22; gold 17; copper 13; and silver 4 percent.

No labor strikes affected the mining industry in the State in 1947, but development and capacity production at many properties were hampered by labor shortages. The pronounced decline in output of copper and gold resulted largely from the closing in November 1946 of the 2,000-ton mill at the Holden mine of the Howe Sound Co. in Chelan County, so that all time and effort could be spent developing ore; production and shipment of concentrates were resumed in August 1947.

The value of the metal production herein reported has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: Gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.210 per pound ($0.162); lead, $0.144 per pound ($0.109); zinc, $0.115 per pound ($0.122).

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired June 30, 1947.

Mine production of gold, silver, copper, lead, and zinc in Washington, 1946-47, in terms of recovered metals

Metals	1946		1947	
	Quantity	Value	Quantity	Value
Gold, fine ounces...	51,168	$1,790,880	34,965	$1,223,775
Silver, fine ounces.	264,453	213,678	293,736	265,831
Copper, pounds......	9,054,000	1,466,748	4,480,000	940,800
Lead, pounds........	5,974,000	651,166	10,718,000	1,543,392
Zinc, pounds........	22,658,000	2,764,276	27,600,000	3,174,000
Total value.........	-------------	6,886,748	-------------	7,147,798

Mine production of gold, silver, copper, lead, and zinc in Washington in 1947, by months, in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January............	1,469	13,551	2,000	662,000	2,178,000
February...........	1,623	18,657	2,000	684,000	2,182,000
March..............	2,401	25,523	2,000	968,000	2,148,000
April..............	1,777	21,232	2,000	898,000	2,008,000
May................	2,108	31,350	2,000	766,000	1,718,000
June...............	1,818	18,406	2,000	744,000	2,416,000
July...............	2,086	25,682	2,000	1,184,000	2,110,000
August.............	4,254	33,369	730,000	976,000	2,610,000
September..........	4,285	24,372	882,000	1,042,000	2,652,000
October............	4,289	27,967	960,000	958,000	2,826,000
November...........	4,505	25,289	950,000	846,000	2,308,000
December...........	4,350	28,338	944,000	990,000	2,444,000
Total, 1947........	34,965	293,736	4,480,000	10,718,000	27,600,000
1946........	51,168	264,453	9,054,000	5,974,000	22,658,000

Ore sold or treated in Washington in 1947, with content in terms of recovered metals

Source	Mines producing	Ore (Short tons)	Gold (Fine ounces)	Silver (Fine ounces
Dry and siliceous gold ore.......	7	63,968	22,811	133,398
Dry and siliceous gold-silver ore	1	27	1	63
Copper ore......................	1	83	106	279
Lead ore........................	4	7,946	-----------	17,659
Lead-copper ore.................	1	3	-----------	105
Zinc ore........................	2	25,357	6	630
Zinc-copper ore.................	1	232,158	11,918	48,647
Zinc-lead ore...................	10	346,634	46	92,945
Total, lode mines...............	1/ 25	676,176	34,888	293,726
Total, placers..................	6	----------	77	10
Total, 1947.....................	31	676,176	34,965	293,736
1946.....................	21	858,023	51,168	264,453

Source	Copper (Pounds)	Lead (Pounds)	Zinc (Pounds)
Dry and siliceous gold ore.......	100	-------------	------------
Dry and siliceous gold-silver ore	200	-------------	------------
Copper ore......................	31,200	-------------	------------
Lead ore........................	4,433	2,045,903	------------
Lead-copper ore.................	200	900	200
Zinc ore........................	2,842	37,015	3,068,599
Zinc-copper ore.................	4,395,800	-------------	2,000,000
Zinc-lead ore...................	45,225	8,634,182	22,531,201
Total, lode mines...............	4,480,000	10,718,000	27,600,000
Total, placers..................	------------	-------------	------------
Total, 1947.....................	4,480,000	10,718,000	27,600,000
1946.....................	9,054,000	5,974,000	22,658,000

1/ A mine producing more than 1 class of ore is counted but once in arriving at total for all classes.

LEADING COUNTIES

Pend Oreille County moved into first place among Washington counties in 1947 in both tonnage of ore treated and value of metal produced. The 295,015 tons of ore treated -- all zinc-lead ore from the Metaline district -- yielded in recovered metals 10,674 ounces of silver, 4,400 pounds of copper, 6,900,000 pounds of lead, and 19,508,800 pounds of zinc, having a total value of $3,247,696, or 45 percent of the State total value. Production came entirely from the properties of the American Zinc, Lead & Smelting Co., Pend Oreille Mines & Metals Co., and Metaline Mining & Leasing Co.

Chelan County dropped to second place in value of metals and produced 232,322 tons of ore yielding metals valued at $1,626,492; virtually all came from zinc-copper ore produced at the Holden mine.

Stevens County ranked next to Pend Oreille County in 1947 in output of lead and zinc; 65,226 tons of ore were treated, which yielded metals valued at $1,251,190. Leading mines were the Deep Creek, Bonanza, Young America, Cleveland, and Admiral.

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M.M.S. No. 1607

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NICKEL IN 1947

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

Consumption of nickel in the United States in 1947 was only moderately greater than in 1946 and this gain was more than offset by smaller sales to the Government strategic stock pile, according to the Bureau of Mines, United States Department of the Interior. As a consequence, imports of nickel into the United States were 13 percent lower than in 1946. Receipts of nickel at consumers' plants were less than consumption and, as a result, there was a 41-percent reduction in inventories, undoubtedly in anticipation of the lower rate (1¼ cents a pound) of duty effective on January 1, 1948.

Total consumption of nickel was 161,513,859 pounds in 1947, of which about 41 percent was utilized by the steel industry. Because of a 15-percent decline in usage of nickel in stainless steels, the quantity of nickel used by the steel industry in 1947 was 3 percent less than in 1946. The use of nickel in cast irons increased 32 percent over 1946. Most of the nickel used in 1947 was in the form of new metal, but proportionately more oxide was used than in 1946.

The data in the consumption tables cover all known consumers of nickel in the form of primary, secondary, and oxide. The figures on nickel salts, however, fall far short of the total and probably represent only one-fourth of the total.

Nickel (exclusive of purchased and home scrap) consumed and in stock in the United States, 1946-47, by forms, in pounds of contained nickel

Form	Stocks at consumers' plants Dec. 31, 1946	Consumption		Stocks at consumers' plants Dec. 31, 1947
		1946	1947	
Primary	1/17,267,049	122,292,187	117,120,883	11,200,642
Secondary (remelted from scrap)	1/ 69,315	154,717		
Oxide	1/ 2,241,911	17,696,534	19,331,904	2,425,152
Matte	5,975,787	19,115,689	23,711,215	1,280,670
Salts	1/ 467,273	951,647	1,349,857	464,315
	1/26,021,335	160,210,774	161,513,859	15,370,779

1/ Revised figure.

Prepared by Hubert W. Davis, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Nickel (exclusive of purchased and home scrap) consumed in the United States, 1946-47, by uses

Use	Pounds of nickel	
	1946	1947
Ferrous:		
Stainless steels	35,986,164	30,700,270
Other steels	31,193,998	34,758,963
Cast irons	5,973,919	7,905,576
Nonferrous (comprises copper-nickel alloys, nickel-silver, brass, bronze, beryllium, magnesium, and aluminum alloys, and Monel, Inconel, and malleable nickel)	51,819,728	55,136,503
High temperature and electrical resistance alloys	13,596,601	10,249,545
Electroplating:		
Anodes	17,059,306	17,975,335
Solutions	1,542,750	1,218,268
Catalysts	544,093	489,828
Ceramics	387,655	385,112
Other	2,106,560	2,694,459
	160,210,774	161,513,859

Nickel production in Canada was 117,781 short tons in 1947, a gain of 23 percent over 1946. Because of suspension of operations at the United States Government-owned nickel mining and processing facilities on March 31, output of nickel oxide in Cuba was only 2,885 short tons (2,219 tons nickel content) in 1947, an 82-percent decline from 1946.

Domestic production of nickel was, as heretofore, small in 1947; it was 646 short tons compared with 352 tons in 1946. The outputs in both years comprised nickel sulfate recovered as a byproduct of copper refining. In addition to the nickel sulfate produced as a byproduct of copper refining in 1947, 4,252,903 pounds of nickel in salts (chiefly nickel sulfate) were produced in the United States from cobalt-nickel ore and nickel-sulfate residues from Canada and from other materials, such as oxide, shot, and scrap. Thus, the total production of nickel salts in the United States in 1947 was 5,544,366 pounds (nickel content), of which about 87 percent was for electroplating, 12 percent for catalysts, and 1 percent for ceramics.

Imports of nickel in all forms were 13 percent less in 1947 than in 1946. As heretofore, Canada was the chief source of the imports; it supplied 112,967,111 pounds of metallic nickel, 29,272,226 pounds of matte, and 16,843,337 pounds of oxide. In 1947 Cuba furnished 13,282,551 pounds of oxide; the United Kingdom 21,798 pounds of oxide, 723,851 pounds of metallic nickel, and 1,516 pounds of bars, rods, etc.; and Sweden, Norway, and the U.S.S.R. supplied 62,823, 3,508,903, and 110,243 pounds, respectively, of metallic nickel.

Nickel products imported for consumption in the United States,
1946-47, by classes, in pounds
(Source: U. S. Department of Commerce)

Class	1946	1947
Nickel ore and matte	38,092,080	29,272,226
Nickel pigs, ingots, shot, etc	142,324,523	117,372,931
Nickel bars, rods, tubes, etc	512	1,516
Nickel oxide	29,041,940	30,147,686
Nickel silver or German silver in sheets, strips, rods and wire	9,762	21,799

Exports of nickel comprise largely products manufactured from imported raw materials. Exports of alloys and scrap (including Monel metal), which comprise the bulk of the foreign shipments, were 51 percent larger in 1947 than in 1946; those of metallic nickel, nickel-chrome electric resistance wire, and nickel silver were 44, 70, and 53 percent, respectively, greater. The United Kingdom (12,615,446 pounds), Canada (2,760,216 pounds), India and Dependencies (1,797,755 pounds), and France (571,526 pounds) were the chief markets for nickel, Monel metal, alloys, and scrap in 1947.

Nickel products exported from the United States, 1946-47,
by classes, in pounds
(Source: U. S. Department of Commerce)

Class	1946	1947
Ore, concentrates, and matte	21,083	1,510
Alloys and scrap containing nickel (including Monel metal)	11,194,004	16,848,166
Metal in ingots, bars, sheets, etc	1,883,881	2,712,787
Nickel-chrome electric resistance wire	817,003	1,386,457
Nickel silver or German silver, crude, scrap, bars, rods, etc	2,037,788	3,125,017

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MINERAL MARKET REPORTS
MMS NO. 1608

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE.

METAL MINING IN NEW MEXICO, 1947

FINAL ANNUAL FIGURES

Under the stimulus of strong demand for copper, lead, and zinc and advances in the average yearly market prices of these metals, the New Mexico mine output of copper in 1947 increased 20 percent, lead 30 percent, and zinc 22 percent over 1946. Average monthly production rates were higher after the Premium Price Plan expired June 30, 1947, although some mines producing chiefly zinc closed. Gold production decreased 22 percent from 1946 but silver increased 53 percent. Activity in straight gold and silver mining was at a low ebb during the year, and most of the precious-metal output was recovered from base-metal mines.

Final figures for 1947 show a total New Mexico output (in terms of recoverable metals) of 3,146 fine ounces of gold, 515,833 fine ounces of silver, 60,205 short tons of copper, 6,383 short tons of lead, and 44,103 short tons of zinc. Production in 1946 was 4,009 ounces of gold, 338,000 ounces of silver, 50,191 tons of copper, 4,899 tons of lead, and 36,103 tons of zinc.

The total gross value of the output of the 5 metals, calculated at the prices shown below, was $37,845,033 in 1947 compared with $26,552,417 in 1946. The value of each metal for 1947, with comparable figures for 1946 in parentheses, was as follows: Gold, $110,110 ($140,315); silver, $466,829 ($273,104); copper, $25,286,100 ($16,261,884); lead, $1,838,304 ($1,067,982); and zinc, $10,143,690 ($8,809,132). Average metal prices used in 1947, which for copper, lead and zinc are weighted and include the increment from premiums paid to mine

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Prepared by A. J. Martin, Denver Office, Metal Economics Branch, Economics and Statistics Division.

operators by the Office of Metals Reserve, were $35 a fine ounce for gold, $0.905 a fine ounce for silver, $0.210 a pound for copper, $0.144 a pound for lead, and $0.115 a pound for zinc. The prices for 1946 were $35 for gold, $0.808 for silver, $0.162 for copper, $0.109 for lead, and $0.122 for zinc.

GOLD

With no change in the price of gold since January 31, 1934, the rise in labor and material costs during and immediately following the war made gold mining in New Mexico generally unprofitable, and the output of gold in 1947, as in 1946, was recovered largely from base-metal ores. Copper ore from the Lordsburg district, Hidalgo County, yielded more than half the State output of gold in 1947. The principal producing mines, in order of output, were the Atwood copper mine, Lordsburg district, Bayard zinc-lead mine, Central district (Grant County), and the Bonney-Miser's Chest copper mine, Lordsburg district.

SILVER

Most of the 515,833 ounces of silver produced in New Mexico in 1947 came from mines producing chiefly base-metal ores. The principal silver producers, in order of output, were the Atwood copper mine, Lordsburg district; Ground Hog and Bayard zinc-lead mine groups, Central district; Waldo zinc-lead group, Magdalena district (Socorro County); Bonney and Miser's Chest copper group, Lordsburg district; and Kelly zinc-lead mine, Magdalena district.

COPPER

The New Mexico mine output of recovered copper in 1947—60,205 short tons—was larger than in either 1946 or 1945; the value of the output, enhanced by the highest average price since 1918, was $25,286,100, the largest since 1917. The Chino open-pit mine of the Kennecott Copper Corp. at Santa Rita, Grant County, continued to be much the largest producer in the State. The ore is loaded in the pit by electric shovels and transported 10 miles over the Santa Fe Railway to the company plants at

Hurley for treatment. The mill at Hurley, the largest in the State, has a rated daily capacity of 20,000 tons. The smelter treats the copper concentrates produced and also precipitates and crude low-grade fluxing ore.

Other important copper producers, in order of output, were the Banner Mining Co. Bonney and Miser's Chest group, Lordsburg district; the leaching operation at the Phelps Dodge Corp. Burro Mountain properties at Tyrone, Grant County; and the C. H. & S. A. McIntosh Atwood mine, Lordsburg district.

LEAD

The advance in the price of lead in 1947 to the highest level on record (before the further advance in 1948) stimulated the mining of lead and zinc-lead ores and of zinc ore with appreciable lead content. Lead ore mined in New Mexico increased from 737 tons in 1946 to 12,323 tons in 1947. The bulk of the lead output, however, continued to come from mines producing chiefly zinc; the quantity recovered from zinc and zinc-lead ores was 5,448 tons compared with 815 tons from lead ore. Copper and gold and silver ores yielded 120 tons of lead. The principal producers of lead in 1947, in order of output, were the Bayard and Ground Hog groups in the Central district and the Waldo and Kelly groups in the Magdalena district.

ZINC

The mine production of recoverable zinc in New Mexico in the last half of 1947 (22,647 tons) was slightly larger than in the first half (21,456 tons) despite the closing of some mines after the Premium Price Plan expired June 30. The Central district of Grant County produced 87 percent of the State total zinc output during the year and the Magdalena district, Socorro County, 11 percent compared with 89 percent and 10 percent, respectively, in 1946. Other small-producing districts in 1947 were: Pinos Altos, Swartz, and Steeple Rock, Grant County; San Simon, Hidalgo County; Victorio, Luna County; and Tierra Blanca, Sierra County. The nine leading producers of zinc accounted for 99 percent of the State total output and, in order of output, were: American Smelting & Refining Co. (Ground Hog group), Kennecott Copper Corp. (Oswaldo mine), United States Smelting, Refining & Mining Co. (Bayard mine group), Empire Zinc Co. (Hanover mine unit), and Peru Mining Co. and subsidiary (Pewabic, Kearney, and Copper Flat mines), all in Grant County; American Smelting & Refining Co. (Magdalena Unit), J. D. Torres (Kelly mine), and McDonald & Dobson (Nitt mine), all in Socorro County; and Mathis & Mathis (Houston-Thomas mines) in Grant County.

Mine production of gold, silver, copper, lead, and zinc
in New Mexico, 1947, by months and counties,
in terms of recovered metals

BY MONTHS

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January.............	220	32,960	4,314	382	3,601
February............	230	33,425	4,432	374	3,417
March...............	220	24,625	4,511	358	3,519
April...............	240	30,750	5,171	399	3,552
May.................	250	35,575	5,102	494	3,712
June................	261	48,540	5,155	495	3,655
July................	310	47,800	5,100	540	3,159
August..............	315	52,475	5,622	586	3,668
September...........	300	55,550	5,523	651	3,924
October.............	290	54,360	5,255	714	4,234
November............	260	49,930	5,135	690	3,887
December............	250	49,843	4,885	700	3,775
Total, 1947:	3,146	515,833	60,205	6,383	44,103

BY COUNTIES

Catron..............	65	3,938	—	—	—
Colfax..............	11	6	—	—	—
Dona Ana............	2	1,792	1	25	—
Eddy................	—	—	1/ —	—	—
Grant...............	997	196,623	58,235	3,735	39,020
Hidalgo.............	1,847	192,643	1,770	357	48
Luna................	25	3,093	2/ 2	67	21
Otero...............	20	313	23	103	—
Sandoval............	9	4	1/ —	—	—
Santa Fe............	29	13	1/ —	—	—
Sierra..............	11	7,314	4	86	1
Socorro.............	130	110,094	170	2,010	5,013
Total, 1947:	3,146	515,833	60,205	6,383	44,103
1946:	4,009	338,000	50,191	4,899	36,103

1/ Less than ½ ton.

2/ Includes 900 pounds from Hidalgo County.

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For Release June 18, 1948.

MINERAL MARKET REPORTS
MMS NO. 1609

LEAD AND ZINC PIGMENTS AND ZINC SALTS IN 1947

On the whole the pigments covered by this report were shipped in increasing quantities in 1947, but the larger tonnages were inadequate to meet consumer demand, according to the Bureau of Mines, United States Department of the Interior. Continuing large demand for pigments and persistent shortages of essential crude materials, among which the shortage of pig lead has stood out for a number of years, resulted in some requirements remaining unsatisfied and some being transferred to competitive products. Labor-management relations, in pigment-consuming industries as well as in industries supplying crude materials used by the pigments makers, were widely improved in 1947, and such important pigment users as the automobile, construction, rubber and storage battery industries were among those to show marked gains.

Zinc pigments shipments gained less than lead pigments but were at a higher rate than the latter in comparison with earlier years. Total weight and value of zinc pigments were higher than ever before and total value of lead pigments were at a new peak. Lead pigment prices were at record high rates at the beginning of the year and moved higher during the year. The supply-demand situations in these pigments themselves, the removal of price controls at the end of 1946, and the general inflationary trend of prices as a whole in the United States and abroad, were responsible for the noteworthy pigment price gains.

Features of the distribution of lead and zinc pigments and zinc salts in 1947 are given in the following discussion. Ceramics have made noteworthy gains in the use of the pigments covered by this report since the war ended, and made a further conspicuous advance in 1947. Litharge shipments to ceramic manufacturers rose 39 percent and of zinc oxide 25 percent, both new peaks; ceramics became the second most important use of litharge. White lead shipments for ceramics likewise advanced in 1947, but did not represent an important quantity, whereas red lead shipments for this purpose fell 20 percent against the 1946 trend. Shipments of leaded zinc oxide, lithopone, red lead, and white lead to paint makers advanced in 1947, those of leaded zinc oxide to a new peak by a substantial margin. Storage battery use of litharge gained 47 percent, or 40 percent above the previous record for 1945, and red lead rose 9 percent. The agricultural use of litharge, on the other hand continued the poor showing since 1944, falling 49 percent from 1946, and this use of zinc sulfate likewise showed an important drop, or 28 percent. Zinc sulfate shipments for this purpose, nonetheless, were the second highest on record. The use of zinc sulfate for the manufacture of rayon in 1947 was unsurpassed, exceeding the previous high record for 1946 by 8 percent.

Prepared by Helena M. Meyer and Alethea W. Mitchell, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Lead and zinc pigments and zinc salts shipped by domestic manufacturers in the United States, 1946-47

	1946			1947		
		Value			Value	
	Short tons	Total	Per ton	Short tons	Total	Per ton
Basic lead sulfate or sublimed lead:						
White	(1)	(1)	(1)	(2)	(2)	(2)
Blue	(1)	(1)	(1)	(2)	(2)	(2)
Red lead	32,526	3/$6,398,035	3/$196	36,064	$12,022,585	$333
Orange mineral	123	(3)	(3)	———	———	———
Litharge	133,799	23,440,389	175	167,050	52,345,941	313
White lead:						
Dry	1/41,892	1/7,491,217	1/179	39,075	12,036,554	308
In oil 4/	24,609	6,265,030	255	29,712	13,794,387	464
Zinc oxide	157,351	22,660,450	144	160,771	29,873,882	186
Leaded zinc oxide	67,971	9,694,067	143	81,459	16,634,516	204
Lithopone	147,001	11,840,596	81	165,024	17,382,592	105
Zinc chloride, 50° Baume	57,316	3,133,891	55	65,521	4,279,737	65
Zinc sulfate	24,931	2,192,706	88	21,547	2,235,683	104

1/ Basic lead sulfate included under white lead (dry) in 1946; Bureau of Mines not at liberty to publish.

2/ Bureau of Mines not at liberty to publish.

3/ Value of orange mineral included under red lead in 1946; Bureau of Mines not at liberty to publish.

4/ Weight of white lead only but value of paste.

Shipments of zinc sulfate by uses, 1946-47, in short tons

Industry	1946		1947	
	Gross weight	Dry basis	Gross weight	Dry basis
Rayon	7,634	5,883	8,210	6,173
Agriculture	10,816	8,178	7,827	6,125
Chemicals	2,254	1,488	2,120	1,439
Flotation reagent	1,084	643	1,112	717
Glue	511	335	624	444
Electrogalvanizing	488	315	233	146
Paints and varnish processing	174	151	61	51
Textile dyeing and printing	552	491	60	38
Other	1,418	943	1,300	864
	24,931	18,427	21,547	15,997

Shipments of lead and zinc pigments, by uses, 1946-47

	1946 Short tons	1947 Short tons
White lead (dry and in oil)		
Paints	1/60,943	61,265
Ceramics	1,367	1,665
Other	1/ 4,191	5,857
	1/66,501	68,787
Red lead		
Storage batteries	19,115	20,883
Paints	9,318	11,362
Ceramics	1,228	977
Other	2,865	2,842
	32,526	36,064
Orange mineral		
Ink manufacture	78	(4)
Color pigments	18	
Other	27	
	123	
Litharge		
Storage batteries	5/75,836	5/111,840
Ceramics	13,166	18,360
Chrome pigments	10,877	9,228
Oil refining	6,682	7,688
Insecticides	14,259	7,288
Varnish	3,302	4,258
Rubber	2,131	2,205
Floor coverings	106	141
Other	7,440	6,042
	133,799	167,050
Basic lead sulfate		
Paints	(1)	(2)
Rubber		
Storage batteries		
Other		
Lithopone		
Paint, varnish and lacquers	3/123,279	3/134,830
Floor coverings and textiles	15,167	17,469
Rubber	1,607	3,085
Other	6,948	9,640
	147,001	165,024
Zinc oxide		
Rubber	83,776	82,248
Paints	34,785	32,867
Ceramics	9,056	11,350
Coated fabrics and textiles	6/10,022	7/9,100
Floor coverings	2,848	4,735
Other	17,364	20,471
	157,851	160,771
Leaded zinc oxide		
Paints	64,816	77,994
Rubber	166	131
Other	2,989	3,334
	67,971	81,459

1/ Data for basic lead sulfate in 1946 included under white lead; Bureau of Mines not at liberty to show separately.

2/ Bureau of Mines not at liberty to publish.

3/ Includes a quantity, not separable, used for printing ink.

4/ No shipments reported for 1947.

5/ In addition, 46,000 tons of black or grey oxide in 1946 and 69,000 tons in 1947 were produced by the makers of storage batteries in their own plants.

6/ Of which 9,363 tons were for rayon.

7/ Of which 7,302 tons were for rayon.

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MINERAL MARKET REPORT
MMS NO. 1610

DOMESTIC BALL CLAY SALES INCREASED IN 1947

Sales of ball clay in 1947, reported by producers to the Bureau of Mines, United States Department of the Interior, were 11 percent higher than in 1946, and established a new record. Tennessee, which furnished 54 percent of the total tonnage, and Kentucky, which furnished 37 percent, were the largest producing States, and accounted for 91 percent of the total tonnage. The remainder, 9 percent, came from Maryland, Mississippi, and New Jersey.

The predominant use of ball clay is in whiteware mixtures, which accounted for 83 percent of the total tonnage in 1947. Ten percent was used in the manufacture of high-grade tile, 4 percent in refractories, and the remaining 3 percent in saggers, architectural terra cotta, artificial abrasives, enameling, and adhesives.

Prices of domestic ball clay quoted in trade journals ranged from $3 to 20.50, depending upon the quality and degree of preparation. The average value reported by producers to the Bureau of Mines increased from $9.85 in 1946 to $10.87 in 1947, per short ton.

Ball clay sold by producers in the United States, 1946-47, by States

State	1946		1947	
	Sh. tons	Value	Sh. tons	Value
Kentucky.....	98,918	$990,301	99,951	$1,072,203
Maryland..... Mississippi.. New Jersey...	12,538	106,208	22,931	262,947
Tennessee....	131,689	1,299,393	146,168	1,588,610
	243,145	2,395,902	269,050	2,923,760

Prepared by R.W. Metcalf and A. Linn, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

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MINERAL MARKET REPORTS
M.M.S. No. 1617

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

PLATINUM AND ALLIED METALS IN 1947

Demand substantially larger than the new supply of refined metal made available, greatly reduced inventory, fluctuation in price, and some speculation were features of the platinum industry in 1947, according to the Bureau of Mines, United States Department of the Interior. Noteworthy also was the much smaller demand for palladium. The retail price of platinum and ruthenium ranged from $56 to $69 an ounce in 1947 and iridium from $70-$80 to $110. Quotations on palladium, osmium, and rhodium, however, were unchanged at $24, $100, and $125 an ounce, respectively.

Refining of platinum in the United States in 1947 was at a rate 19 percent lower than in 1946 and greatly below the substantially larger domestic demand. The refined-metal deficiency was met partly by imports of 111,322 ounces, chiefly from Canada (54,728 ounces), U.S.S.R. (32,667 ounces), and United Kingdom (18,995 ounces); and partly by withdrawals from stocks of refiners and dealers. The jewelry trade was by far the largest outlet for platinum in 1947, taking 51 percent of the total sold to domestic consumers. Sales to the jewelry industry in 1947, however, were 20 percent smaller than in 1946. Less platinum was also sold to the electrical and dental industries in 1947 than in 1946. The smaller demands by the jewelry, electrical, and dental industries, however, were more than offset by larger sales to the chemical trade and by sales to the Government strategic stock pile.

Refining of palladium in the United States was at about the same rate in 1947 as in 1946. The quantity refined in 1947, however, was 77 percent less than domestic sales, which, however, were the smallest since 1944. The deficit in palladium was more than met by imports of 133,962 ounces of refined metal, chiefly from Canada (71,048 ounces) and U.S.S.R. (57,563 ounces). The smaller sales of palladium in 1947 were shared by all consuming industries.

Less iridium, osmium, and rhodium, but more ruthenium were refined in the United States in 1947 than in 1946. More osmium and rhodium but less iridium and ruthenium were imported than in 1946. Sales of iridium, osmium, and ruthenium were less than in 1946 but those of rhodium were up appreciably.

PRODUCTION

Refining of new platinum metals in 1947 was 40 percent less than in 1946. Of the new metals recovered in 1947, 71 percent was chiefly from concentrates and sponge from Canada and crude from Colombia, 21 percent was from domestic crude (chiefly from Alaska), and 8 percent was a byproduct of domestic gold and copper ores.

Prepared by Hubert W. Davis, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

New platinum metals recovered by refiners in the United States in 1947, by sources, in troy ounces

	Platinum	Palladium	Iridium	Osmium	Rhodium	Ruthenium	Total
Domestic from -							
Crude platinum.....	10,955	133	1,056	313	374	41	12,872
Gold and copper refining.........	1,098	3,471	1	---	---	---	4,570
	12,053	3,604	1,057	313	374	41	17,442
Foreign from -							
Crude platinum..... Nickel and copper refining.........	41,958	552	548	106	189	62	43,415
Total recovery:							
1947	54,011	4,156	1,605	419	563	103	60,857
1946	92,947	3,858	2,995	475	1,396	107	101,778

Secondary platinum metals recovered in 1947 comprised 54,190 ounces of platinum, 27,492 ounces of palladium, 2,089 ounces of iridium, 708 ounces of osmium, 756 ounces of rhodium, and 1,853 ounces of ruthenium - a total of 87,088 ounces. Comparable figures for 1946 are as follows: Platinum, 40,385 ounces; palladium, 27,856 ounces; iridium, 2,002 ounces; osmium, 773 ounces; rhodium, 714 ounces; and ruthenium, 907 ounces - a total of 72,637 ounces. Substantial quantites of worn-out catalysts, spinnerets, laboratory ware, and other products are returned by consumers to refiners for refining. The refined platinum metals recovered from these products (or their equivalent in refined metals) are returned to the consumers. The platinum metals so recovered are not included in the figures of secondary metals.

FOREIGN TRADE

(Figures on imports and exports from records of the U. S. Department of Commerce)

Imports. - Imports of platinum metals into the United States in 1947 were 24 percent less than the all-time high established in 1946. The principal sources of imported platinum metals in 1947 were Canada (137,653 ounces), U.S.S.R. (94,367 ounces), Colombia (42,960 ounces), and United Kingdom (28,244 ounces).

Platinum metals (unmanufactured) imported for consumption in the United States, 1946-47, in troy ounces

Material	1946	1947 1/
Unrefined materials: 2/		
Ores and concentrates of platinum metals	28,639	4,486
Grains and nuggets (including crude, dust and residues)	38,735	39,472
Sponge and scrap	7,962	7,229
Osmiridium	676	399
	76,012	51,586
Refined metals:		
Platinum	119,853	111,322
Palladium	187,555	133,962
Iridium	12,402	5,011
Osmium	1,969	2,189
Rhodium	525	2,122
Ruthenium	8,894	3,627
	331,198	258,233
	407,210	309,819

1/ Preliminary and subject to revision.
2/ The concentrates and crude imported from Canada contain platinum, palladium, iridium, rhodium, and ruthenium, and the crude sponge imported from Canada contins platinum and palladium. Although the U. S. Department of Commerce records "platinum content" for these entries, the Bureau of Mines has determined from the importers of these materials that most of the entries reflect the platinum metals content. The Bureau of Mines has also determined from the largest importer of crude platinum from Colombia that the entries for his material, recorded as "platinum content" by the U. S. Department of Commerce, represent the gross weight of the material.

Exports. - Exports of platinum were 17,766 ounces in 1947 (15,468 ounces in 1946), and those of the other platinum-group metals were 7,783 ounces (4,294 ounces in 1946).

SALES

Sales of platinum metals to consumers in the United States were 387,454 ounces in 1947, a decline of 20 percent from 1946. Some platinum was sold to the Government strategic stock pile in 1947, but the quantity so sold has not been included in the figures.

Platinum continued to be the most widely used metal of the group and accounted for 57.7 percent of the platinum metals sold to domestic consumers in 1947. The jewelry trade was again the chief buyer of platinum, taking 51 percent of the total, but its purchases were 20 percent less in 1947 than in 1946. The chemical industry, which dropped to third place in 1946, purchased more than twice as much platinum in 1947 as in 1946 and displaced the electrical industry as the second largest buyer. Sales of platinum to the electrical and dental industries were less than in 1946.

Sales of palladium accounted for 35.7 percent of the platinum metals sold to domestic consumers in 1947, but they were 36 percent less than in 1946. All consuming industries purchased less palladium than in 1946.

Sales of the other platinum metals - iridium, osmium, rhodium, and ruthenium - were comparatively small; they made up 6.6 percent of the total platinum metals sold in 1947. Demand for rhodium was up appreciably but that for iridium, osmium, and ruthenium was less.

The following table shows sales of platinum metals to consumers in the United States in 1946 and 1947.

Platinum metals sold to consuming industries in the United States in 1946 and 1947, in troy ounces

Industry	Platinum	Palladium	Iridium, osmium, rhodium, and ruthenium	Total
1946				
Chemical	31,107	15,092	4,219	50,418
Electrical	35,007	91,243	3,513	129,763
Dental and medical	21,859	41,407	145	63,411
Jewelry and decorative	144,015	60,294	17,039	221,348
Miscellaneous and undistributed	2,491	9,145	7,999	19,635
	234,479	217,181	32,915	484,575
1947				
Chemical	65,743	6,899	3,580	76,222
Electrical	30,469	81,528	2,906	114,903
Dental and medical	9,774	20,876	74	30,724
Jewelry and decorative	114,768	28,523	15,172	158,463
Miscellaneous and undistributed	2,696	443	4,003	7,142
	223,450	138,269	25,735	387,454

STOCKS

Stocks of platinum metals in all forms held by refiners, importers, and dealers were 337,523 ounces on December 31, 1947, a decrease of 7 percent from 1946.

Stocks of platinum metals held by refiners, dealers, importers, and Office of Metals Reserve in the United States, December 31, 1945, 1946, and 1947, in troy ounces

Year	Refiners, dealers, and importers			Office of Metals Reserve		
	Refined, unrefined, and in process of refining			Refined metals		
	Platinum	Palladium	Iridium, osmium, rhodium, and ruthenium	Platinum	Palladium	Iridium, osmium, rhodium, and ruthenium
1945	138,839	119,757	43,376	59,638	72	3,542
1946	187,624	132,523	41,876	78,137	(1)	(1)
1947	133,300	167,364	36,859	(1)	(1)	(1)

1/ Metals have been sold, transferred to Bureau of Federal Supply, or otherwise disposed of.

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MINERAL MARKET REPORT
MMS NO. 1618

KAOLIN OR CHINA CLAY IN 1947

The output of kaolin or china clay from domestic mines has increased steadily since 1944, according to reports of producers to the Bureau of Mines, United States Department of the Interior. The output in 1947 rose to a record of 1,425,106 short tons valued at $17,107,963 - an increase of 8 percent in tonnage over 1946.

The quantity of kaolin consumed in the manufacture of paper was 775,760 tons (54 percent of the total tonnage): rubber 166,201 tons (12 percent): refractories 142,449 tons (10 percent); pottery 120,222 tons (8 percent) and the remainder in a wide variety of uses. Eleven States reported production in 1947 - as in 1946. Georgia, the largest producer, (1,032,013 tons), furnished 72 percent of the total tonnage, South Carolina 19, Pennsylvania 2, and the remainder came from Alabama, California, Florida, Illinois, Maryland, North Carolina, Utah, and Virginia. Increases in output were reported from Alabama, Georgia, and South Carolina.

The average sales value of kaolin as reported by producers was $12.70 in 1947, compared with $10.84 in 1946. Imports of kaolin decreased from 89,233 tons in 1946 to 82,628 tons in 1947.

Kaolin sold or used by producers in the United States, 1946-47, by States

State	1946		1947	
	Short tons	Value	Short tons	Value
Alabama Florida North Carolina	61,834	$973,683	63,283	$1,077,006
California	18,254	152,898	16,359	278,489
Georgia	917,752	9,671,049	1,032,013	12,756,041
Pennsylvania	42,186	147,262	33,491	122,653
South Carolina	270,016	2,493,031	271,054	2,774,545
Other States 1/	12,261	115,844	8,906	99,229
	1,322,303	13,553,767	1,425,106	17,107,963

1/ Illinois, Maryland, Utah, and Virginia.

Prepared by R. L. Metcalf and A. Linn, under the supervision of G.W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

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MINERAL MARKET REPORT
MMS NO. 1619

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

METAL MINING IN UTAH, 1947 - FINAL ANNUAL FIGURES

Gold, with a 136-percent increase in output, set the pace in Utah's vigorous recovery in metal mining in 1947 from the poor showing in 1946, according to the Salt Lake Office of the Bureau of Mines, United States Department of the Interior. The spectacular record made by gold brought production of the metal to the highest figure in the State's history and restored Utah to its former position as the largest gold-producing State. Copper followed gold closely, increasing 133 percent in quantity and bringing output of the metal to the highest point in any peacetime year. Production of copper would have been even more impressive except for a labor strike on the Bingham & Garfield Railroad from October 22 to November 5, resulting in the loss of a large quantity of metal from the Utah Copper mine. Silver, lead, and zinc also made good State records, silver production gaining 89 percent, lead 62, and zinc 56 percent.

Metal values in 1947 increased markedly over those in 1946, copper rising 202 percent, gold 136, lead 114, silver 112, and zinc 46 percent. The 1937 total value of $158,100,773, an all-time high, was 163 percent above the total value in 1946 and 27 percent more than the previous peak of $124,562,540 reached in 1943. Of the State total value in 1947, copper contributed 71 percent, gold over 9, lead 9, zinc 6, and silver over 4 percent.

Many properties idle in 1946 came into production in 1947, increasing the number of active lode mines 34 percent - from 88 in 1946 to 118 in 1947.

The value of the metal production herein reported has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: Gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.210 per pound ($0.162); lead, $0.144 per pound ($0.109); zinc, $0.115 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired June 30, 1947.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

Mine production of gold, silver, copper, lead, and zinc in Utah, 1946-47, in terms of recovered metals

Metals	1946		1947	
	Quantity	Value	Quantity	Value
Gold, fine ounces......	178,533	$6,248,655	421,662	$14,758,170
Silver, fine ounces.....	4,118,453	3,327,710	7,780,032	7,040,929
Copper, pounds..........	228,568,000	37,028,016	533,066,000	111,943,860
Lead, pounds...........	61,422,000	6,694,998	99,396,000	14,313,024
Zinc, pounds...........	56,584,000	6,903,248	87,346,000	10,044,790
Total value........	----------	60,202,627	----------	158,100,773

Mine production of gold, silver, copper, lead, and zinc in Utah in 1947, by months, in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January	31,981	599,795	44,972,000	7,452,000	7,084,000
February	31,426	617,740	43,602,000	7,574,000	6,974,000
March	34,302	639,490	48,604,000	8,162,000	7,732,000
April	36,885	668,170	46,944,000	8,936,000	8,638,000
May	39,747	736,385	50,284,000	10,052,000	8,808,000
June	36,972	668,085	47,354,000	9,056,000	8,698,000
July	37,848	600,655	46,974,000	6,578,000	6,238,000
August	40,212	664,040	47,264,000	8,084,000	6,984,000
September	38,325	664,585	46,292,000	8,212,000	6,352,000
October	26,749	595,015	32,942,000	8,396,000	6,564,000
November	28,653	607,490	32,312,000	8,202,000	6,224,000
December	38,562	718,582	45,522,000	8,692,000	7,050,000
Total: 1947	421,662	7,780,032	533,066,000	99,396,000	87,346,000
1946	178,533	4,118,453	228,568,000	61,422,000	56,584,000

Ore sold or treated in Utah in 1947, with content in terms of recovered metals

Source	Mines producing	Ore (short tons)	Gold (fine ounces)	Silver (fine ounces)
Dry and siliceous gold ore.......	10	5,755	11,726	35,814
Dry and siliceous gold-silver ore	19	107,064	6,861	303,756
Dry and siliceous silver ore.....	31	58,922	2,218	378,654
Copper...........................	19	29,021,293	1/ 366,289	2/3,102,648
Lead.............................	51	27,194	2,031	245,351
Zinc.............................	8	3/ 94,685	345	62,439
Zinc-lead........................	36	1,066,614	32,168	3,637,220
Zinc-lead-copper.................	4	1,587	13	14,150
Total lode mines.................	4/ 118	30,383,114	421,651	7,780,032
Placers..........................	2	------------	11	------------
Total: 1947......................	120	30,383,114	421,662	7,780,032
1946.............................	89	13,245,691	178,533	4,118,453

Source	Copper (pounds)	Lead (pounds)	Zinc
Dry and siliceous gold ore...............	87,840	144,325	------------
Dry and siliceous gold-silver ore........	611,008	2,497,096	------------
Dry and siliceous silver ore.............	225,526	1,901,986	1,655
Copper...................................	5/528,356,364	9,415	------------
Lead.....................................	149,671	6,467,877	335,041
Zinc.....................................	488,758	2,195,061	8,881,612
Zinc-lead................................	3,062,936	85,834,684	77,728,186
Zinc-lead-copper.........................	83,897	345,556	399,506
Total lode mines.........................	533,066,000	99,396,000	87,346,000
Placers..................................	------------	------------	------------
Total: 1947..............................	533,066,000	99,396,000	87,346,000
1946.....................................	6/228,568,000	61,422,000	56,584,000

1/ Includes 1 ounce recovered from mine-water precipitates.
2/ Includes 8 ounces recovered from mine-water precipitates.
3/ Includes 66,422 tons of zinc slag.
4/ A mine producing more than 1 class of ore is counted but once in arriving at total for all classes.
5/ Includes 21,149,066 pounds recovered from mine-water precipitates.
6. Includes 10,142,892 pounds recovered from mine-water precipitates.

LEADING DISTRICTS

Compared with 1946, the value of the five metals produced in the West Mountain (Bingham) district in 1947 rose 197 percent; in the Park City region, 40 percent; and in the Tintic district, 46 percent. The West Mountain (Bingham) district contributed 91 percent of the State gold output, 62 percent of the silver, 99 percent of the copper, 53 percent of the lead, and 47 percent of the zinc; total value of district metal output represented 89 percent of the State total value.

Mine production of gold, silver, copper, lead, and zinc in Utah and in the chief mining districts of Utah, 1946-47, in terms of recovered metals.

	Ore (short tons)	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)	Total Value
West Mountain (Bingham) district							
1946	12,572,289	140,877	2,030,182	224,166,500	24,685,500	15,186,500	$47,429,473
1947	29,306,718	384,414	4,816,611	528,630,200	52,325,500	40,892,800	141,063,409
Park City region							
1946	336,474	16,956	1,009,422	892,500	16,745,000	17,752,500	5,544,668
1947	657,496	17,052	1,352,048	1,139,800	21,973,500	21,912,400	7,744,525
Tintic district							
1946	132,326	17,799	619,724	450,500	8,477,000	7,419,000	3,025,794
1947	167,384	15,385	1,076,726	1,099,600	12,331,000	7,938,400	4,432,408
Remaining districts							
1946	204,602	2,901	459,125	3,058,500	11,514,500	16,226,000	4,202,692
1947	251,516	4,811	534,647	2,196,400	12,766,000	16,602,400	4,860,431
Total, Utah							
1946	13,245,691	178,533	4,118,453	228,568,000	61,422,000	56,584,000	60,202,627
1947	30,383,114	421,662	7,780,032	533,066,000	99,396,000	87,346,000	158,100,773

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MINERAL MARKET REPORT
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ROOFING GRANULES IN 1947

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For the fourth consecutive year a new production record was established by the roofing granule industry in 1947, according to reports of producers to the Bureau of Mines, United States Department of the Interior. Output totaled 1,695,420 short tons, 23 percent more than in 1946. In response to the high demand for roofing for new construction and repair of older buildings, the capacity of asphalt roofing plants has been expanded substantially and consequently granule requirements have increased. Production of artificially colored granules increased 29 percent, natural 13 percent, and brick 3 percent. The average value of artificially colored granules increased from $14.74 in 1946 to $15.79 in 1947, natural from $7.75 to $8.25, and brick from $15.85 to $17.65. Granule values have increased comparatively little; for example, from 1944 to 1947 the average value of artificially colored granules increased 8 percent.

Production of roofing granules in the United States, 1942-47

Year	Natural			Artificially colored		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
1942	352,320	$2,650,503	$7.52	538,310	$7,594,174	$14.11
1943	287,090	2,190,143	7.63	543,870	7,745,452	14.24
1944	287,084	2,210,379	7.70	637,089	9,313,356	14.62
1945	355,840	2,628,052	7.39	628,220	9,124,891	14.52
1946	447,910	3,470,411	7.75	877,990	12,939,512	14.74
1947	504,980	4,166,810	8.25	1,133,870	17,905,899	15.79

Year	Brick			Total		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
1942	43,230	$636,961	$14.73	933,860	$10,881,638	$11.65
1943	47,650	716,685	15.04	878,610	10,652,280	12.12
1944	65,827	1,005,964	15.28	990,000	12,529,699	12.66
1945	61,220	947,637	15.48	1,045,280	12,700,580	12.15
1946	54,660	866,174	15.85	1,380,560	17,276,097	12.51
1947	56,570	998,434	17.65	1,695,420	23,071,143	13.61

Prepared by N. C. Jensen, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
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J. A. KRUG, Secretary
JAMES BOYD, Director

FOR RELEASE JULY 1948

MINERAL MARKET REPORT
M. M. S. No. 1621

FUEL BRIQUETS AND PACKAGED FUEL IN 1947

(Fuel-briquet data pp. 1-3; packaged-fuel data pp. 3-4)

The production of fuel briquets rose again in 1947 to a new high of 3,171,596 net tons. Packaged fuel dropped in 1947 to 182,881 tons.

The fuel-briquetting industry in the United States consists of a relatively few large plants (35 in 1947), producing a small, hard pillow-briquet suitable for shipment. The packaged-fuel industry, on the other hand, consists of a large number of small plants (62 in 1947), producing 3- to 4-inch, more or less friable cubes wrapped (usually 6 in a package) in sturdy paper, designed primarily for local consumption.

FUEL BRIQUETS.--The output of fuel briquets in 1947, continuing its upward trend since 1938, totaled 3,171,596 tons valued at $30,762,253--a 5.6 percent increase in tonnage and a 22 percent increase in value over 1946. Production increased markedly in the Eastern States, but declined slightly in the Central and more significantly in the Pacific Coast States. The value received at the plant ranged from $5 to over $20 per ton in 1947.

Briquets were made in 16 States in 1947, Wisconsin leading with 1,344,720 tons, followed by Pennsylvania, West Virginia, Missouri, and Illinois, in that order.

TABLE 1.--SALIENT STATISTICS OF THE FUEL-BRIQUETTING INDUSTRY IN THE UNITED STATES, 1943-47

Year	Production: Eastern States	Production: Central States	Production: Pacific Coast States	Production: Total	Imports	Exports	Apparent consumption 1/	Value of production	Plants in operation	Average value per net ton, f.o.b. plant: Eastern States	Central States	Pacific Coast States
	Net tons											
1943	544,786	1,493,368	125,844	2,163,998	198	174,973	1,989,223	$15,148,109	28	$5.04	$7.44	$10.26
1944	625,779	1,704,005	135,177	2,464,961	538	163,672	2,301,827	18,434,579	30	5.42	8.03	10.07
1945	637,740	1,991,733	132,731	2,762,204	722	174,107	2,588,819	21,678,886	32	5.65	8.40	10.04
1946	880,109	1,986,234	137,684	3,004,027	653	163,339	2,841,341	25,299,612	35	6.61	9.03	11.26
1947	1,089,705	1,966,834	115,057	3,171,596	387	248,760	2,923,223	30,762,253	35	7.82	10.56	12.77

1/ Production plus imports minus exports.

Thirty-five plants reported production in 1947; 34 of these were also active in 1946 and 1 started commercial operations in 1947. Four plants were idle and 3 went out of business.

TABLE 2.--PRODUCTION OF FUEL BRIQUETS IN THE UNITED STATES, 1946-47

	1946: Plants 1/	1946: Net tons	1946: Value	1947: Plants 1/	1947: Net tons	1947: Value	Percent of change from 1946 in--: Tonnage	Value
Eastern States	7	880,109	$5,817,639	8	1,089,705	$8,519,741	+23.8	+46.4
Central States	25	1,986,234	17,931,641	24	1,966,834	20,773,184	-1.0	+15.8
Pacific Coast States	3	137,684	1,550,332	3	115,057	1,469,328	-16.4	-5.2
	35	3,004,027	25,299,612	35	3,171,596	30,762,253	+5.6	+21.6

1/ 1946: 11 plants in Wis.; 4 plants in Pa.; 3 in Ill.; 2 each in Ark., Kans., Mich., Mo., and W. Va.; and 1 each in Calif., Mass., Minn., Nebr., N. Dak., Oreg., and Wash. 1947: 10 plants in Wis.; 4 plants in Pa.; 3 in Ill.; 2 each in Ark., Kans., Mich., Mo., and W. Va.; and 1 each in Calif., Mass., Minn., Nebr., N. Y., N. Dak., Oreg., and Wash.

Nine kinds of raw fuels entered into the manufacture of 13 types of briquets in 1947. Raw fuels, other than yard screenings, accounted for 90 percent of the raw fuels used in the manufacture of fuel briquets in 1947.

TABLE 3.--RAW FUELS USED IN MAKING FUEL BRIQUETS IN THE UNITED STATES, 1947

Character of raw fuels used	Plants	Net tons
Pennsylvania anthracite	16	1,064,790
Arkansas hard coals	8	1/ 369,091
Bituminous low-volatile	16	1,241,043
Bituminous high-volatile	5	134,436
Semicoke (lignite char)	1	
Residual carbon from pyrolysis of natural gas	1	129,208
Residual carbon from manufacture of oil gas	2	
Petroleum coke	3	35,927
	2/ 35	2,974,495

Plants using--	Plants	Raw fuels used (net tons): Yard screenings	Other raw fuels	Total
Yard screenings (exclusively (from own or other yards)	4	27,974	--------	27,974
Raw fuels (other than yard screenings) exclusively	20	-------	1,679,039	1,679,039
Both yard screenings and other raw fuels	11	277,242	990,240	1,267,482
	35	305,216	2,669,279	2,974,495

1/ Includes also some Oklahoma semianthracite.

2/ 17 plants used 1 kind of fuel only, 2 plants used 2 kinds (separately), 15 used mixtures of 2 kinds, and 1 used a mixture of 3 kinds; hence the sum of the items shown exceeds the total number of plants.

Prepared by Gertrude S. Goodman and J. A. Corgan, Chief, Anthracite and Coke Section under the supervision of T.W.Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

TABLE 4.--CLASSIFICATION OF PLANTS AND PRODUCTION OF FUEL BRIQUETS IN THE UNITED STATES, BY KINDS OF RAW FUEL USED, 1946-47

Raw fuel used	1946			1947		
	Plants	Briquets produced		Plants	Briquets produced	
		Net tons	Percent of total		Net tons	Percent of total
Pennsylvania anthracite	2	1,983,238	66.0	3	146,995	4.6
Mixture of Pennsylvania anthracite and bituminous low-volatile	11			10	1,366,417	43.1
Mixture of Pennsylvania anthracite and bituminous high-volatile	2			2	443,896	14.0
Mixture of Pennsylvania anthracite and bituminous high- and low-volatile	--------			1		
Semianthracite	6	296,968	9.9	1/ 6	400,491	12.6
Arkansas hard coals mixture	1/ 2			1/ 2		
Bituminous:						
Low-volatile	6	540,844	18.0	4	616,579	19.5
High-volatile	1			2		
Semicoke (lignite char)	1	166,715	5.6	1	138,657	4.4
Residual carbon from pyrolysis of natural gas	1			1		
Residual carbon from manufacture of oil gas	2			2		
Petroleum coke	2	16,262	.5	2	58,561	1.8
Mixture of petroleum coke and bituminous high-volatile	1			-------		
Mixture of petroleum coke and bituminous low-volatile	--------			1		
	2/ 35	3,004,027	100.0	2/ 35	3,171,596	100.0

[1] One of these plants also used Oklahoma semianthracite.

[2] In 1946 and 1947, 2 plants made 2 kinds; hence the sum of the items shown exceeds the total number of plants active in the respective years.

Asphalt binders predominate in briquetting practice in the United States. In 1947, 33 operators used approximately 202,000 tons of asphaltic types and small quantities of starch, coal-tar pitch, and oil-gas tar pitch; 2 operators used no binder. The percentage of binder in the briquets (by weight) ranged from less than 5 to 9 percent or more.

Pillow-shaped briquets, weighing under 5 ounces (except for an 11-ounce bituminous high-volatile pillow by Coal Processing Corp., Buckner, Ill.), were made at 32 plants in 1947; 2½-ounce cylindrical (barrel-shaped) briquets, at 2 plants; and 18- and 20-ounce cubes at 1 plant.

Fuel briquets were shipped to 35 States and the District of Columbia and exported principally to Canada. Fuel briquets are used almost entirely for domestic space heating, but 6 operators reported a total of 14,807 tons used for power or heat at their plants in 1947.

Exports of fuel briquets in 1947 amounted to 248,760 tons and were shipped principally to Canada; imports amounted to 387 tons, virtually all from Canada.

TABLE 5.--SHIPMENTS OF FUEL BRIQUETS OF DOMESTIC MANUFACTURE IN THE UNITED STATES, 1946-47, BY STATES OF DESTINATION, AS REPORTED BY PRODUCERS, IN NET TONS [1]

State of destination	1946	1947	State of destination	1946	1947
Arkansas	438	1,249	Missouri	245,903	350,200
California	11,577	11,119	Nebraska	56,890	59,719
Connecticut	15,302	5,101	New Hampshire	10,686	5,419
Delaware	3,537	785	New Jersey	27,734	32,403
District of Columbia	2,159	2,174	New York	94,124	48,462
Florida	544	283	North Carolina	19,080	24,184
Georgia	200	49	North Dakota	157,482	127,671
Idaho	----------	293	Ohio	74,391	96,562
Illinois	113,082	156,167	Oregon	95,688	67,642
Indiana	63,552	80,286	Pennsylvania	49,498	126,135
Iowa	124,271	110,701	Rhode Island	8,249	3,417
Kansas	13,931	27,357	South Carolina	5,723	6,565
Kentucky	4,939	5,955	South Dakota	132,348	122,615
Maine	17,924	8,732	Vermont	5,864	3,573
Maryland	21,049	28,551	Virginia	24,811	36,824
Massachusetts	63,458	23,219	Washington	6,923	22,092
Michigan	187,452	290,482	West Virginia	2,708	4,305
Minnesota	579,356	453,198	Wisconsin	543,692	542,169
Mississippi	97	----------			
				2,784,662	2,885,658

[1] For shipments outside the United States see table of official export statistics "Briquets exported from the United States, 1946-47, by countries of destination and customs districts," published in Minerals Yearbook, 1947.

Germany, France, and the United States are the top-ranking briquet-producing countries of the world (Table 6). Attention is called to changes in previously published data for Germany, Japan, and Australia; all data for fiscal years ending before June 30 are now included in columns for the previous year (for example, data for year ending March 31, 1944, will be found in the 1943 column).

TABLE 6.--WORLD PRODUCTION OF FUEL BRIQUETS, 1942-47, BY COUNTRIES, IN METRIC TONS 1/

(Compiled by P. Roberts)

Country 1/	1942	1943	1944	1945	1946	1947
Algeria	45,565	50.765	87,440	101,756	98,320	78,139
Australia: Victoria 2/	421,619	435,727	462,380	512,349	522,157	(3/)
Belgium	1,127,430	1,013,410	456,990	787,530	1,079,620	(3/)
Canada	220,139	244,892	277,707	275,625	298,960	290,880
Czechoslovakia:						
Coal	468,000	553,000	464,000	71,309	209,180	(3/)
Lignite	261,000	323,000	328,000	192,485	252,452	(3/)
Eire	21,052	90,188	123,749	118,558	85,781	(3/)
France	3,424,550	3,045,910	1,588,490	3,531,530	5,399,403	5,279,000
Germany:						
Coal 4/	2/ 7,186,522	2/ 6,419,404	(3/)	(3/)	5/ 1,902,293	(3/)
Lignite 6/	2/ 59,707,162	2/ 61,550,277	55,407,000	(3/)	5/ 39,884,438	(3/)
Hungary:						
Coal	268,210	227,480	(3/)	(3/)	(3/)	(3/)
Lignite	57,130	58,250	7/ 20,450	8/ 13,450	33,670	(3/)
Indochina, French	54,600	29,860	17,620	1,940	4,710	(3/)
Japan 2/	942,553	538,508	237,999	383,481	(3/)	(3/)
Morocco, French	(3/)	10,872	25,198	(3/)	(3/)	(3/)
Netherlands:						
Coal	968,052	896,192	608,316	412,571	725,859	910,046
Lignite	57,005	55,457	42,959	35,757	43,655	41,673
New Zealand	13,052	12,386	12,661	9,941	13,183	(3/)
Poland:						
Coal	752,960	813,098	765,217	93,078	529,082	632,258
Lignite	(3/)	(3/)	(3/)	----------------	27,190	41,697
Portugal	60,094	46,601	48,698	72,177	96,000	(3/)
Rumania	194,726	175,877	(3/)	(3/)	(3/)	(3/)
Spain	788,613	653,994	924,862	1,049,520	833,445	(3/)
Tunisia	20,691	(9/)	(9/)	16,619	32,347	36,764
Turkey	23,869	30,256	34,276	23,692	(3/)	15,130
United Kingdom	71,294	749,342	883,974	1,002,333	1,567,664	1,862,115
United States:						
Briquets	1,586,023	1,963,136	2,236,163	2,505,816	2,725,193	2,877,208
Packaged fuel	229,560	195,592	159,455	188,823	173,198	165,906
Total 10/	78,971,000	80,183,000	65,214,000	(3/)	(3/)	(3/)

1/ In addition to countries listed, briquets are produced in Bulgaria, Italy, Netherlands Indies, Sweden, and Yugoslavia, but production figures are not available.

2/ Fiscal year ended March 31 of year following that stated.

3/ Data not available.

4/ Figures include production from East Upper Silesia through 1944.

5/ Excludes Polish zone.

6/ Figures include production from Sudetenland through 1944.

7/ January to June, inclusive.

8/ June to December, inclusive.

9/ Data previously listed for 1943 and 1944 represent tonnage consumed by Tunisian railways; later information indicates this was taken from stocks and there was actually none produced.

10/ Totals incomplete; represent only rounded sum of figures given in table. Additional data to that published in Minerals Yearbook, 1946, as follows: Eire, 1939 - 6,005; Portugal, 1939 - 24,267 and 1941 - 74,903; United Kingdom, 1940 - 671,609 and 1941 - 172,080 tons.

PACKAGED FUEL.--The 62 plants active in 1947 produced 182,881 net tons of packaged fuel valued at $2,882,105. The national production decreased 4.2 percent from 1946, but the value increased 16 percent. There has been no production in the Pacific Coast States since 1942. Shortages of raw fuels, binder, paper, and labor, as well as high manufacturing costs, were cited by operators as causes of decreased production and idleness.

Eberling, Glenn Smith, Leemon, and Johnson were the processes employed in the manufacture of packaged fuel in 1947; these are briefly discussed by V. F. Parry of the Bureau of Mines in his Report of Investigations 3757, Technical and Economic Study of Packaged Fuel.

TABLE 7.--SALIENT STATISTICS OF THE PACKAGED-FUEL INDUSTRY IN THE UNITED STATES, 1943-47

Year	Production (net tons)			Value of production	Plants in operation	Average value per net ton, f.o.b. plant	
	Eastern States	Central States	Total			Eastern States	Central States
1943	4,970	210,635	215,605	$2,366,733	72	$11.55	$10.96
1944	3,788	171,982	175,770	2,053,343	68	12.26	11.67
1945	16,606	191,537	208,143	2,518,636	61	12.86	12.04
1946	9,065	181,854	190,919	2,496,388	70	12.93	13.08
1947	2,153	180,728	182,881	2,882,105	62	16.58	15.75

The values received by the operators comprise cost of coal at the mine, freight rate, direct and indirect manufacturing costs, and profit. All of the producing States showed increases in average realization at the plant in 1947. The average realization at the plant by individual operators ranged from $13 to $22.22 per ton.

Of the 62 plants producing packaged fuel in 1947, 23 were in the Detroit and Cleveland areas and contributed 38 percent of the total production. Nineteen plants were idle and 6 went out of business in 1947. One plant was reported under construction in 1947--The Chicago Packaged Fuel Co., Chicago, Ill., with equipment by Blaw-Knox Co., Pittsburgh, Pa.; this plant, using bituminous low-volatile coal and asphalt binder, expects to start operating in 1948.

Forty-seven plants operated from nine to twelve months of the year, accounting for 95 percent of the total production.

TABLE 8.--PRODUCTION OF PACKAGED FUEL IN THE UNITED STATES, 1946-47, BY STATES

States	1946			1947		
	Plants	Net tons	Value	Plants	Net tons	Value
Eastern States	[1] 5	9,065	$117,206	[1] 3	2,153	$35,705
Central States:						
Illinois	3	1,454	23,814	2	([2])	([2])
Indiana	2	([2])	([2])	2	([2])	([2])
Iowa	1	([2])	([2])	1	([2])	([2])
Kentucky	1	([2])	([2])	--------	--------	--------
Michigan	27	55,883	741,486	24	66,156	1,036,844
Minnesota	4	29,319	413,443	4	24,155	416,084
Missouri	1	([2])	([2])	1	([2])	([2])
Nebraska	1	([2])	([2])	1	([2])	([2])
Ohio	16	29,239	377,736	15	27,704	443,106
Wisconsin	9	48,087	600,715	9	42,392	634,694
Undistributed [2]	--------	17,872	221,988	--------	20,321	315,672
Total Central States	65	181,854	2,379,182	59	180,728	2,846,400
Total United States	70	190,919	2,496,388	62	182,881	2,882,105

[1] 1946: Maine 1; Pennsylvania, 1; and Virginia, 3. 1947: Maine, 1; and Virginia, 2.

[2] Data which the Bureau of Mines is not at liberty to publish separately are included under "Undistributed."

Four kinds of raw fuels entered into the manufacture of 5 types of packaged fuel in 1947. Bituminous low-volatile coal at 57 plants, used either alone or in combination with other fuels, accounted for 94 percent of the total raw fuels used. Raw fuels, other than yard screenings, accounted for two-thirds of the raw fuels made into cubes in 1947.

Starch, totaling 960 tons and averaging 15 pounds per ton of packaged fuel produced in 1947, is the principal binder employed. Asphalt, about 100 pounds per ton, and cement, about 70 pounds per ton, were also used.

TABLE 9.--RAW FUELS USED IN MAKING PACKAGED FUEL IN THE UNITED STATES, 1947

Character of raw fuels used	Plants	Net tons
Bituminous low-volatile	57	171,469
Bituminous high-volatile	4	3,325
Semianthracite	3	3,977
Petroleum coke	7	3,105
	[1] 62	181,876

Plants using--	Plants	Raw fuels used (net tons)		
		Yard screenings	Other raw fuels	Total
Yard screenings exclusively (from own or other yards)	33	37,281	---------	37,281
Raw fuels (other than yard screenings) exclusively	10	-------	89,671	89,671
Both yard screenings and other raw fuels	19	21,190	33,734	54,924
	62	58,471	123,405	181,876

[1] 53 plants used 1 kind of fuel only, 8 used 2 kinds (separately), and 1 used a mixture of 2 kinds; hence the sum of the items shown exceeds the total number of active plants.

TABLE 10.--CLASSIFICATION OF PLANTS AND PRODUCTION OF PACKAGED FUEL IN THE UNITED STATES, BY KINDS OF RAW FUEL USED, 1946-47

Raw fuel used	1946			1947		
	Plants	Packaged fuel produced		Plants	Packaged fuel produced	
		Net tons	Percent of total		Net tons	Percent of total
Bituminous low-volatile	63	165,734	86.8	56	165,936	90.7
Bituminous high-volatile	1	17,185	9.0	4	10,589	5.8
Mixture of bituminous low- and medium-volatile	1			-----		
Mixture of bituminous low- and high-volatile	1			-----		
Mixture of bituminous low-volatile and Pennsylvania anthracite	1			-----		
Mixture of bituminous low-volatile and petroleum coke	1			1		
Semianthracite	3	3,424	1.8	3	3,977	2.2
Petroleum coke	7	4,576	2.4	6	2,379	1.3
	[1] 70	190,919	100.0	[1] 62	182,881	100.0

[1] In 1946 and 1947, 2 types were made at 8 plants; hence the sum of the items shown exceeds the total number of plants active in the respective years.

Local sales (called for by passenger car or delivered by truck) amounted to 147,599 tons and accounted for 81 percent of the 1947 total sales; other than local (shipped by truck to points in Wisconsin, Minnesota, Indiana, and Michigan), 13 percent; and shipments by rail (to points in Wisconsin, Minnesota, and Michigan), 6 percent.

NOTE

The complete report with detailed tables, to be released later as a chapter in Minerals Yearbook 1947, will be distributed to the regular mailing list.

Directories of fuel-briquetting and packaged-fuel plants operating in 1947 and a list of manufacturers of equipment will be furnished on request by the Bureau of Mines, Washington 25, D. C.

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For release July 17, 1948.

MINERAL MARKET REPORT
MMS NO. 1622

METAL MINING IN COLORADO, 1947—FINAL ANNUAL FIGURES

The mine outputs of gold, silver, copper, lead, and zinc in Colorado each increased in 1947, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. The gain over 1946 in gold output was 18 percent, silver 14 percent, copper 23 percent, lead 10 percent, and zinc 7 percent despite the closing of some mines producing mainly zinc after the Premium Price Plan expired June 30. The total value of the output of the five metals in 1947 was $23,403,239—an increase of $3,499,730 (18 percent) over 1946. The rise in the market price of lead to an unprecedented high level, the higher Government price paid for silver after July 1, 1946, a more nearly adequate supply of labor, and the strong demand for copper, lead, and zinc were factors contributing to the sustained activity in mining and development and the gain in production. At some properties exploration was stimulated by Government exploration premiums paid on metals produced before July 1; these premiums could be used until December 31 if not previously exhausted.

The Colorado production in 1947 (in terms of recoverable metals) was 168,279 fine ounces of gold, 2,557,653 fine ounces of silver, 2,150 short tons of copper, 18,696 short tons of lead, and 38,745 short tons of zinc. In 1946 the production was 142,613 ounces of gold, 2,240,151 ounces of silver, 1,754 tons of copper, 17,036 tons of lead, and 36,147 tons of zinc.

At prices shown below, the value of the output in 1947 was: Gold, $5,889,765 ($4,991,455 in 1946); silver, $2,314,676 ($1,810,042); copper, $903,000 ($568,296);

Prepared by A. J. Martin, Denver Office, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

lead, $5,384,448 ($3,713,848); and zinc, $8,911,350 ($8,819,868)—a total of $23,403,239 in 1947 compared with $19,903,509 in 1946.

Average prices used in 1947, which for copper, lead, and zinc are weighted and include the increment from premiums paid to mine operators by the Office of Metals Reserve, were $35 an ounce for gold, $0.905 an ounce for silver, $0.210 a pound for copper, $0.144 a pound for lead, and $0.115 a pound for zinc. In 1946 the prices were $35 for gold, $0.808 for silver, $0.162 for copper, $0.109 for lead, and $0.122 for zinc.

Ore treated in Colorado in 1947 (including that obtained from old dumps) totaled 1,544,694 tons compared with 1,463,496 tons in 1946. The 1947 total comprised 1,005,072 tons of gold, gold-silver, and silver ores 247,881 tons of zinc-lead ore, 223,753 tons of zinc ore, 51,416 tons of lead, lead-copper, and zinc-lead- copper ores, and 16,572 tons of copper ore. Data on the quantity of placer gravel washed are not available; the output of placer gold was 17,573 ounces and silver 3,451 ounces compared with 20,172 and 3,698 ounces, respectively, in 1946.

GOLD

Production of gold in Colorado in 1947 (168,279 ounces) was still much less than the annual output before wartime restrictions lasting nearly 3 years were placed on gold mining in 1942. In 1941 the production was 380,029 ounces; the peak output was 1,391,364 ounces in 1900. In 1947 several placer operations shut down because of high labor and material costs, but the consequent decline in placer gold output (from 20,172 ounces in 1946 to 17,573 ounces in 1947) was more than offset by the increase in lode-gold production.

Teller County (Cripple Creek district), with an output of 58,158 ounces of gold, or 35 percent of the State total, continued to be the principal gold-producing district in Colorado. The ore produced, comprising 103,031 tons of newly mined ore and 310,232 tons obtained from old dumps, was treated in the Golden Cycle mill at Colorado Springs. San Miguel County (output 39,567 ounces of gold) ranked second and was followed by San Juan County (20,123 ounces), Lake (17,367 ounces), Park (15,123 ounces), Ouray (4,536 ounces), and Clear Creek (2,911 ounces). The foregoing seven counties produced 94 percent of the State total gold output. Other producing counties, in order of output, were: Summit, Rio Grande, Boulder, Eagle, La Plata and Montezuma combined, Gunnison, Adams, Gilpin, Chaffee, Mineral, Garfield, Jefferson, Dolores, Saguache, Custer, Montrose, Fremont, Pitkin, Douglas, Hinsdale, and Grand.

The five leading Colorado gold-producing companies in 1947, in order of rank, were: Golden Cycle Corporation (Cripple Creek operations), Telluride Mines, Inc. (San Miguel County), Shanandoah-Dives Mining Co. (San Juan County), Cresson Consolidated Gold Mining & Milling Co. (Cripple Creek), and Resurrection Mining Co. (Leadville).

SILVER

The Colorado output of silver was 2,557,653 ounces in 1947 compared with 2,240,151 ounces in 1946 and the peak of 25,838,600 ounces in 1893. In 1947 San Miguel County ranked first among the counties in silver production; its output was 440,676 ounces compared with 358,443 ounces in 1946. The other important silver-producing counties in 1947 were San Juan County, 417,451 ounces; Mineral, 317,712 ounces; Lake, 261,928 ounces; Eagle, 233,351 ounces; Summit, 192,999 ounces; Clear Creek, 167,830 ounces; Ouray, 150,886 ounces; and Dolores, 124,199 ounces. The nine counties named above produced 90 percent of the State total silver output. The other producing counties, in order of output, were Gunnison, Chaffee, Pitkin, Custer, Saguache, Park, Boulder, Montrose, Teller, Gilpin, Rio Grande, Garfield, Jefferson, La Plata and Montezuma, Fremont, Hinsdale, Adams, and Jackson.

The five leading silver-producing companies, in order of output, were: Emperius Mining Co. (Amethyst and other mines at Creede), The New Jersey Zinc Co. Empire Zinc Division (Eagle mine at Red Cliff), Idarado Mining Co. (Treasury Tunnel mines, San Miguel County claims), Telluride Mines, Inc. (Smuggler-Union mine), and Shenandoah-Dives and Silver Lake mines, San Juan County).

COPPER

The output of copper in Colorado in 1947 (2,150 tons) was derived mainly from ores mined principally for zinc, lead, or precious metal content; copper ore yielded only 24 percent of the State total copper. The highest annual output was 14,171 tons in 1938, when copper ore from Eagle County (carrying also iron, silver, and gold) yielded the bulk of the State copper output. San Miguel County, with an output of 745 tons, was the only county that produced more than 400 tons of copper in 1947. The only substantial producer was the Idarado Mining Co. in San Miguel County, which makes a copper concentrate from its complex gold-silver-copper-lead-zinc ore.

LEAD

The average market price of lead in 1947 was higher than that recorded for any previous year and was close to the maximum price paid to mine operators under the Premium Price Plan. Mines that produced mainly lead therefore were not materially affected by expiration of the Plan on June 30. The 18,696 tons of recoverable lead produced in Colorado in 1947 compares with 17,036 tons in 1946 and the record high of 82,137 tons in 1900. Important lead-producing counties in 1947 were Lake County (Leadville), with an output of 4,300 tons; San Juan, 2,899 tons; San Miguel, 2,636 tons; Dolores, 2,042 tons; Summit, 1,605 tons; Gunnison, 1,506 tons; and Ouray, 1,092 tons. These seven counties produced 86 percent of the State total lead output. Other producing counties, in order of output, were: Eagle, Clear Creek, Saguache, Mineral, Custer, Pitkin, Boulder, Park, Gilpin, Chaffee, Garfield, La Plata, Fremont, and Rio Grande.

The larger lead-producing companies, in order of rank, were: Resurrection Mining Co. at Leadville; Rico Argentine Mining Co. at Rico.; Telluride Mines, Inc., at Telluride; Callahan Zinc-Lead Co., Inc., at White Pine; and American Smelting & Refining Co. Kokomo unit in Summit County.

ZINC

Although some marginal mines closed when the Premium Price Plan expired, the State total output of recoverable zinc increased from 36,147 tons in 1946 to 38,745 tons in 1947. The peak production during World War II was 44,094 tons in 1943 and the record high was 67,143 tons in 1916. In 1947 the adjoining Eagle, Summit, and Lake Counties, producing 17,375, 5,919, and 4,809 tons of zinc, respectively, accounted for nearly 73 percent of the State total output. Dolores County contributed 3,433 tons, San Miguel 2,068 tons, San Juan 1,804 tons, Gunnison 1,687 tons, and Ouray 643 tons. Counties producing less than 400 tons, in order of output, were Park, Clear Creek, Custer, Saguache, Chaffee, Fremont, Garfield, Gilpin, Pitkin, Mineral, and La Plata. The leading zinc-producing companies, in order of rank, were: The New Jersey Zinc Co. Empire Zinc Division in Eagle County; American Smelting & Refining Co. Kokomo unit, Summit County; Resurrection Mining Co., Leadville district; Rice Argentine Mining Co., Dolores County; and Callahan Zinc-Lead Co., Gunnison County.

Mine production of gold, silver, copper, lead, and zinc in Colorado, 1947, by months, in terms of recovered metal

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January..........	11,575	146,650	136	1,210	3,033
February.........	12,108	152,627	134	1,136	2,957
March............	13,150	165,190	155	1,390	3,302
April............	14,815	166,499	168	1,500	3,189
May..............	13,750	233,500	191	1,520	3,080
June.............	15,490	248,200	221	1,725	3,550
July.............	15,364	196,100	146	1,300	3,050
August...........	13,980	238,650	205	1,678	3,100
September........	14,351	244,825	193	1,782	3,289
October..........	15,082	258,220	235	1,880	3,615
November.........	14,460	259,350	191	1,850	3,370
December.........	14,154	247,842	175	1,725	3,210
Total 1947:	168,279	2,557,653	2,150	18,696	38,745
1946:	142,613	2,240,151	1,754	17,036	36,147

Mine production of gold, silver, copper, lead, and zinc in Colorado, 1947, by counties, in terms of recovered metal

County	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)	Total value 1/
Adams..........	387	64	—	—	—	$13,603
Boulder........	2,059	14,360	5	81	—	110,656
Chaffee........	300	49,001	131	24	71	133,139
Clear Creek....	2,911	167,830	20	467	168	435,452
Custer.........	35	27,472	2	111	121	86,821
Dolores........	104	124,199	109	2,042	3,433	1,539,481
Douglas........	3	—	—	—	—	105
Eagle..........	936	233,351	241	924	17,375	4,607,276
Fremont........	8	592	11	4	59	20,428
Garfield.......	129	1,841	—	13	35	18,139
Gilpin.........	302	4,470	3	70	30	42,746
Grand..........	1	—	—	—	—	35
Gunnison.......	445	63,098	23	1,506	1,687	904,128
Hinsdale.......	2	308	2	2/	—	993
Jackson........	—	8	1	—	—	343
Jefferson......	116	1,251	69	—	—	34,172
Lake...........	17,367	261,928	110	4,300	4,809	3,235,206
La Plata and Montezuma.....	892	968	1	5	4	34,766
Mineral........	245	317,712	23	329	7	402,310
Montrose.......	10	7,781	60	—	—	32,424
Ouray..........	4,536	150,886	135	1,092	643	814,284
Park...........	15,123	20,890	10	80	382	663,590
Pitkin.........	4	27,770	2/	110	12	59,802
Rio Grande.....	2,129	2,442	9	1	—	80,956
Saguache.......	47	21,445	12	397	118	167,643
San Juan.......	20,123	417,451	395	2,899	1,804	2,497,633
San Miguel.....	39,567	440,676	745	2,636	2,068	3,331,191
Summit.........	2,340	192,999	33	1,605	5,919	2,094,179
Teller.........	58,158	6,860	—	—	—	2,041,738
Total 1947:	168,279	2,557,653	2,150	18,696	38,745	23,403,239
1946:	142,613	2,240,151	1,754	17,036	36,147	19,903,509

1/ Value of copper, lead, and zinc calculated on pounds before reducing pounds to equivalent (or approximate for some counties) in tons.

2/ Less than ½ ton.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary

JAMES BOYD, Director

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FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

For Release July 16, 1948.

MINERAL MARKET REPORT
MMS NO. 1623

METAL MINING IN OREGON, 1947 - FINAL ANNUAL FIGURES

Production of silver in Oregon in 1947 was four times the 1946 output, owing largely to operations at one mine, and was the highest since 1942 according to the San Francisco Office of the Bureau of Mines, United States Department of the Interior. Gold production increased 8 percent above the output for 1946. Although copper, lead, and zinc outputs were also above the totals for 1946, production of these metals remained relatively small.

Final figures for 1947 show a total output for Oregon (in terms of recoverable metal) of 18,979 fine ounces of gold, 30,379 fine ounces of silver, 14 short tons of copper, 12 tons of lead, and 1 ton of zinc. Production in 1946 was 17,598 ounces of gold, 6,927 ounces of silver, 7 tons of copper, and 2 tons of lead.

The total value of the output of the 5 metals was $701,324 in 1947 compared with $624,231 in 1946. The value of each metal for 1947, with comparable figures for 1946 in parentheses, was as follows: Gold, $664,265 ($615,930) silver, $27,493 ($5,597); copper, $5,880 ($2,268); lead, $3,456 ($436); and zinc, $230 (none). Average metal prices used in 1947, which for copper, lead and zinc are weighted and include the increment of premiums paid to mine operators by the Office of Metals Reserve, were: Gold, $35 a fine ounce; silver, $0.905 a fine ounce; copper, $0.210 a pound; lead, $0.144 a pound; and zinc, $0.115 a pound. The prices in 1946 were: $35 for gold; $0.808 for silver; $0.162 for copper; $0.109 for lead; and $0.122 for zinc.

GOLD

Of the total production of gold in Oregon in 1947, 93 percent came from placer mines. Two connected-bucket dredges and 5 non-floating washing plant operations recovered 69 percent of the total placer gold, 10 dragline dredges (at 12 locations in 1947) recovered 28 percent, 19 hydraulic mines recovered 2 percent, and 11 mines using small-scale hand methods recovered 1 percent. Virtually all of the lode gold was derived from dry and siliceous ores; a minor quantity was recovered from copper ore. Although 69 properties produced in 1947 (60 in 1946), the greatest proportion of the gold came from a relatively few mines; the following 5 producers, listed in order of output, supplied 79 percent of the State total: Sumpter Valley Dredging Co. and Porter & Co. (connected-bucket dredges); Calhoun & Howell, Oregon, Ltd., and Stearns & Owens (dragline dredges); and W. E. Pantle Gold Dredging Co. (dry-land dredge).

Prepared by Alfred L. Ransome, San Francisco Office, under the supervision of Charles W. Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

SILVER

Silver production in Oregon in 1947 increased 339 percent compared with 1946. Of the State total, Jefferson County yielded more than two-thirds, and most of the remainder came from Baker, Grant, and Lane Counties; 89 percent came from lode mines, chiefly from dry silver ore, and direct smelting was the principal method of recovery. The principal silver producer was the Oregon King mine, Ashwood district, Jefferson County.

COPPER, LEAD AND ZINC

Most of the copper output of Oregon in 1947 was from copper and gold ores produced from the Champion mine, Bohemia district, Lane County, the balance being a byproduct of ores worked primarily for their gold and silver contents. Lead output was a byproduct from gold, silver, and copper ores, and the small quantity of zinc produced was recovered entirely as a byproduct from gold ore.

Mine production of gold, silver, copper, lead, and zinc
in Oregon, 1947, by months and counties,
in terms of recovered metals.

BY MONTHS

Month	Gold (fine ounces)	Silver (fine counces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January	617	322	-----	-----	---------
February	505	166	-----	-----	1
March	1,132	230	-----	-----	---------
April	1,243	2,208	1	1	---------
May	1,698	2,025	1	1	---------
June	1,981	6,186	1	2	---------
July	2,203	5,524	1	2	---------
August	2,597	2,486	4	1	---------
September	1,728	2,624	-----	1	---------
October	1,718	2,854	2	1	---------
November	1,738	2,992	4	2	---------
December	1,819	2,762	-----	1	---------
Total, 1947:	18,979	30,379	14	12	1

Mine production of gold, silver, copper, lead, and zinc in Oregon, 1947, by months and counties, in terms of recovered metals - continued

BY COUNTIES

Baker	11,007	3,878	--------	--------	--------
Curry	6	1	--------	--------	--------
Grant and Malheur 1/	5,035	3,144	--------	2	--------
Jackson	1,793	228	--------	--------	--------
Jefferson	172	21,234	4	7	--------
Josephine	385	52	--------	--------	--------
Lane	361	1,802	10	3	1
Union	4	1	--------	--------	--------
Wallowa	15	2	--------	--------	--------
Wheeler	201	37	--------	--------	--------
Total: 1947	18,979	30,379	14	12	1
1946	17,598	6,927	7	2	--------

1/ Combined to avoid disclosure of individual output.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. Krug, Secretary James Boyd, Director

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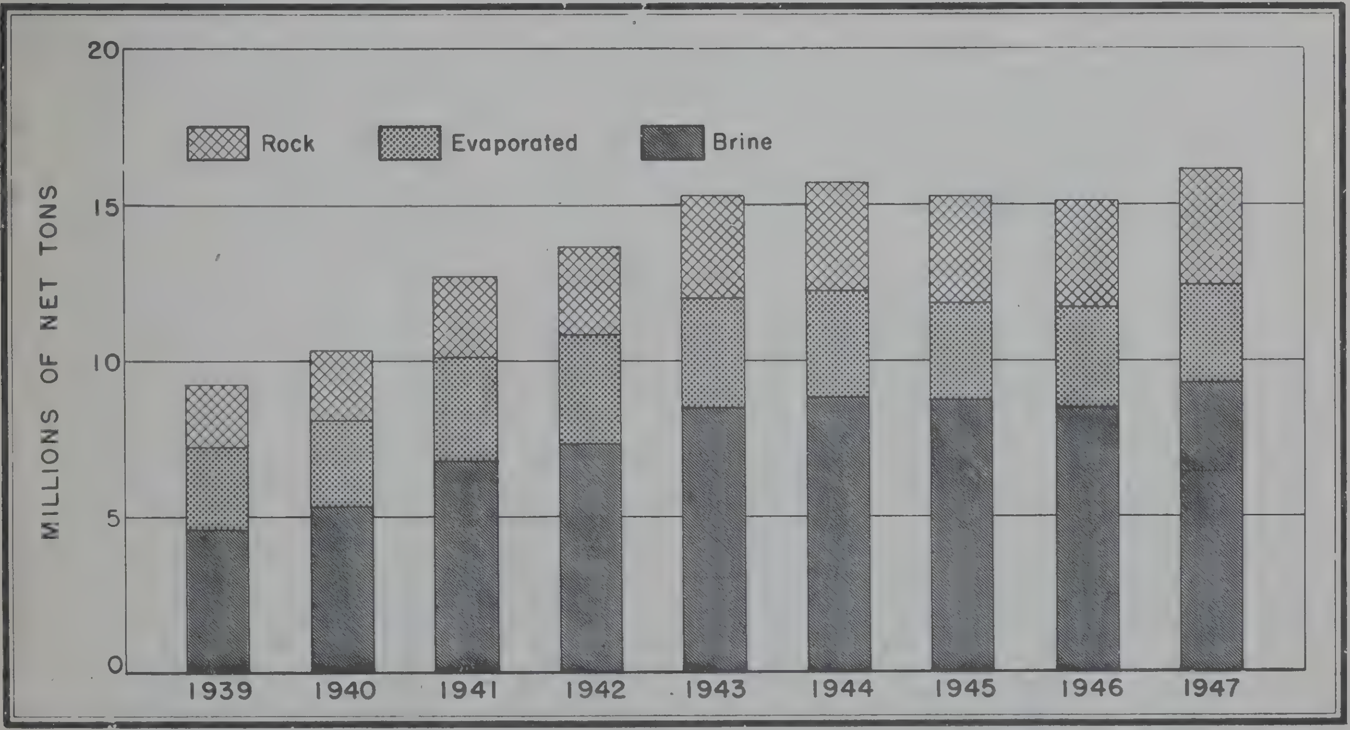
For release July 13.1948

MINERAL MARKET REPORT
MMS No. 1625

SALT PRODUCTION IN 1947 UP A MILLION TONS

In 1947, the salt industry attained a new production record, according to reports of producers to the Bureau of Mines, United States Department of the Interior. Output totaled 16,138,374 short tons, which compares with 15,132,145 tons in 1946. The salt was produced by 73 plants owned by 49 companies in 13 States and Puerto Rico.

The increase was due chiefly to greater production of salt for use in the chemical industry. Brine salt was 9 percent higher than in 1946 and rock salt 10 percent, whereas evaporated declined 3 percent.



Trends in the quantity of rock salt, evaporated salt, and brine (in terms of salt content) sold or used by producers in the United States, 1939-47.

Prepared by Florence E. Harris and E. M. Tucker, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch; Economics and Statistics Division.

Salt production in the United States, 1935-39 (av.) and 1946-47, short tons

	1935-39 Average	1946	1947
Sold or used by producers:			
Dry salt:			
Evaporated (manufactured) short tons..	2,507,374	3,249,457	3,158,718
Rock salt.......do.......	1,947,254	3,412,008	3,754,353
Total..................	4,454,628	6,661,465	6,913,071
Value..................	$21,730,539	$38,294,396	$43,032,621
Average per ton.........	$4.87	$5.75	$6.22
Brine:			
Short tons..............	4,205,587	8,470,680	9,225,303
Value..................	$1,675,273	$6,618,190	$9,243,559
Total salt:			
Short tons..............	8,660,215	15,132,145	16,138,374
Value 1/................	$23,405,612	$44,912,586	$52,276,180

1/ Values are f.o.b. mine or refinery and do not include cost of cooperage or containers.

Production by States. - Michigan led the States in salt production, with 28 percent of total output in 1947. The three leading States, Michigan, New York, and Ohio produced 65 percent of the total.

Salt sold or used by producers in the United States, 1946-47, by States

State	1946			1947		
	Quantity			Quantity		
	Short tons	Percent of total	Value	Short tons	Percent of total	Value
California......	729,092	5	$3,358,060	768,397	5	$3,810,898
Kansas.........	815,018	5	4,014,919	904,398	6	4,534,406
Louisiana.......	1,846,522	12	4,612,359	1,955,382	12	5,898,828
Michigan........	4,334,202	29	15,711,074	4,531,761	28	15,127,549
New Mexico......	8,677	(1)	16,399	12,006	(1)	19,239
New York.... ...	2,813,782	19	10,153,274	2,923,023	18	11,875,485
Ohio...........	2,645,995	17	4,160,011	2,975,676	18	6,815,639
Puerto Rico.....	12,411	(1)	83,494	13,344	(1)	101,287
Texas..........	1,098,589	7	1,356,676	1,191,621	7	2,090,098
Utah...........	121,669	1	339,505	113,285	1	340,028
West Virginia...	272,841	2	896,894	279,300	2	1,161,429
Other States 2/.	433,347	3	209,921	470,181	3	501,294
	15,132,145	100	44,912,586	16,138,374	100	52,276,180

1/ Less than 0.5 percent.
2/ Includes Nevada, Oklahoma and Virginia.

Methods of recovery. - The accompanying table shows the quantities of salt obtained by the various processes used in 1947.

Salt sold or used in the United States, 1946-47, by methods of recovery.

Method of recovery	1946		1947	
	Short tons	Value	Short tons	Value
Evaporated:				
Bulk:				
Open pans or grainers...	558,026	$5,905,704	526,041	$6,336,068
Vacuum pans............	1,840,061	14,165,778	1,790,346	15,824,364
Solar..................	553,056	1,971,947	581,932	2,173,652
Pressed blocks..........	298,314	2,942,966	260,399	2,708,857
Rock:				
Bulk:..................	3,314,948	12,479,589	3,685,190	15,350,722
Pressed blocks..........	97,060	828,412	69,163	638,958
Salt in brine (sold or used as such)	8,470,680	6,618,190	9,225,303	9,243,559
Total....................	15,132,145	44,912,586	16,138,374	52,276,180

Evaporated salt. - In 1947, 33 companies operated 47 evaporated salt plants, in 13 States and Puerto Rico.

Evaporated salt sold or used by producers in the United States 1946-47 by States

State	1946		1947	
	Short tons	Value	Short tons	Value
California......	595,747	$2,988,775	625,379	$3,452,309
Kansas..........	338,532	2,829,111	345,178	2,961,140
Louisiana.......	87,834	584,815	74,843	591,330
Michigan........	953,183	8,162,183	896,555	8,645,977
New York........	466,115	5,025,740	432,505	5,192,627
Ohio............	456,227	3,615,003	446,568	4,285,469
Puerto Rico.....	12,411	83,494	13,344	101,287
Utah............	115,248	310,610	(1)	(1)
West Virginia...	136,320	883,393	134,872	1,017,001
Other States 2/,	87,840	503,271	189,474	795,801
	3,249,457	24,986,395	3,158,718	27,042,941

1/ Included in Other States.

2/ Includes Nevada, New Mexico, Oklahoma, Texas and Utah.

Rock Salt. - The output of rock salt in 1947 was by 21 operations in 8 States.

Rock salt sold by producers in the United States, 1943-47.

Year	Short tons	Value	Year	Short tons	Value
1943........	3,259,138	$11,180,884	1946......	3,412,008	$13,308,801
1944........	3,448,238	12,225,057	1947......	3,754,353	15,989,680
1945........	3,505,740	12,964,391			

Pressed blocks. - After reaching an all-time high in 1946, the total output of pressed blocks declined to 329,562 short tons, the lowest of the half-decade 1943-47. The evaporated-salt blocks were supplied by 22 plants and the rock-salt blocks by 8 plants in 1947.

Pressed-salt blocks sold by original producers of the salt in the United States, 1943-47

	From evaporated salt		From rock salt		Total	
Year	Short tons	Value	Short tons	Value	Short tons	Value
1943....	269,064	$2,598,873	77,912	$668,027	346,976	$3,266,900
1944....	274,216	2,797,015	79,063	724,456	353,279	3,521,471
1945....	242,632	2,479,109	94,811	849,154	337,443	3,328,263
1946....	298,314	2,942,966	97,060	828,412	395,374	3,771,378
1947....	260,399	2,708,857	69,163	638,958	329,562	3,347,815

About 133,000 short tons of table salt--nearly all evaporated salt except a small quantity--and 81,000 tons of livestock salt were reported iodized in 1947.

Salt content of brine. - Fifteen plants in 7 States produced 9,225,303 short tons of brine salt in 1947--a new record.

Legislation (two bills - H.R. 5641 and S.2676) pending in Congress at this time, proposes free importation of salt brine.

USES

Salt has widely divergent uses. The tonnages that go into its chief uses are shown in the accompanying table.

The most notable increases were in the quantities of salt used for soda ash and chlorine-increases of more than a half a million tons for the former and more than 240,000 tons for the latter. The gap between demand and supply which producers strained to bridge in 1946 was reduced in 1947 by greater production of both soda ash and chlorine.

Salt used for highways, railroads, dust and ice control increased 154,000 tons over 1946.

Meat-packing requirements increased more than 90,000 tons. Salt used in metallurgy increased 38,000 tons over 1946. Water treatment requirements rose almost 27,000 tons.

Decreases were registered for livestock (58,000 tons), table salt (56,000), hides and leather (35,000), refrigeration (33,000) canning and preserving (22,000), and dairy products, other food processing, agriculture, and textile processing also required somewhat less than in 1946.

The accompanying table includes synthetic rubber under "undistributed." Again the annual quantity of dry salt used for this purpose was about half that so used in the year immediately preceding--in the neighborhood of 50,000 short tons.

Salt sold or used by producers in the United States, 1946-47, by classes and uses.
in short tons

Use	1946 Evaporated	1946 Rock	1946 Brine	1947 Evaporated	1947 Rock	1947 Brine
Chlorine, bleaches, chlorates, etc.......	337,513	594,659	1,454,682	368,430	711,439	1,661,943
Soda ash...............	....	....	6,957,592	(1)	....	7,467,138
Dyes and organic chemicals.............	56,991	53,547	....	59,683	67,100	....
Soap (precipitant)....	48,412	15,185	....	43,445	16,733	....
Other chemicals.......	104,484	430,987	(2)	96,958	510,747	(2)
Textile processing....	37,050	121,176	....	33,518	117,724	....
Hides and leather.....	108,029	178,083	....	95,438	155,370	....
Meat packing..........	354,365	331,482	....	368,670	408,019	....
Fish curing...........	37,856	35,307	....	40,267	22,726	....
Butter, cheese, and other dairy products..	121,417	5,647	....	108,323	5,236	....
Canning and preserving	167,249	21,725	....	150,482	16,694	....
Other food processing	240,799	24,885	....	231,408	24,271	....
Refrigeration........	48,042	221,635	....	40,730	196,242	....
Livestock............	599,537	192,344	....	528,481	205,375	....
Highways, railroads, dust and ice control	7,960	312,164	....	6,942	466,762	....
Table and other household..........	498,166	209,684	....	478,647	173,411	....
Water treatment.....	212,348	213,197	(2)	220,330	231,812	(2)
Agriculture.........	16,380	15,492	....	14,785	9,198	....
Metallurgy.........	17,566	31,403	....	22,094	65,027	....
Undistributed 3/....	235,363	403,406	58,406	250,087	360,467	96,222
Total...........	3,249,457	3,412,008	8,470,680	3,158,718	3,754,353	9,225,303

1/ Data for evaporated salt included with "undistributed."
2/ Data for salt in brine included with "Undistributed."
3/ Comprises miscellaneous uses and data not presentable by classes, (footnotes 1 and 2), including most exports.

DISTRIBUTION

The accompanying table shows salt shipped from local sources to destinations within the State in which it is produced totaled with that shipped into the State from other sources. As reshipments are disregarded, the statistics represent only original shipments into States by producers.

Distribution (shipments) of evaporated and rock salt in the United States, 1946-47, by States of destination, in short tons

Destination	1946		1947	
	Evaporated	Rock	Evaporated	Rock
Alabama	14,670	40,131	12,938	28,323
Arizona	17,011	4,614	16,230	3,038
Arkansas	11,625	30,144	11,652	44,130
California	365,791	65,079	331,693	53,709
Colorado	37,654	16,805	37,565	60,384
Connecticut	15,598	14,749	13,818	17,397
Delaware	4,283	14,519	4,725	16,387
District of Columbia	5,728	2,075	5,706	2,220
Florida	11,046	36,825	10,450	36,179
Georgia	22,669	57,888	21,670	46,710
Idaho	18,782	811	15,996	1,571
Illinois	241,328	207,409	235,427	246,046
Indiana	99,555	63,086	100,056	72,907
Iowa	116,272	95,402	114,256	108,675
Kansas	53,459	135,976	53,741	142,970
Kentucky	34,863	96,974	30,325	70,209
Louisiana	13,932	133,062	16,277	138,949
Maine	13,886	56,203	13,382	58,706
Maryland	40,337	25,473	35,250	52,827
Massachusetts	55,470	71,478	55,738	84,764
Michigan	145,865	75,871	139,660	115,967
Minnesota	119,168	72,192	111,455	69,688
Mississippi	10,421	33,212	8,664	26,238
Missouri	82,168	78,148	69,914	78,025
Montana	23,475	3,280	20,194	3,478
Nebraska	1/ 54,629	58,266	55,960	63,835
Nevada	1/ 15,030	66,208	4,019	88,181
New Hampshire	5,191	52,778	4,628	55,561
New Jersey	113,680	141,116	103,478	138,421
New Mexico	3,312	20,324	7,291	23,355
New York	230,705	503,452	222,149	554,376
North Carolina	55,047	56,866	49,432	57,599
North Dakota	12,677	4,952	11,654	6,177
Ohio	213,335	132,489	212,762	160,876
Oklahoma	32,050	32,841	29,639	26,228
Oregon	42,625	415	50,775	5,144
Pennsylvania	160,844	134,577	156,237	131,069
Rhode Island	10,169	11,601	7,796	10,725
South Carolina	12,633	24,157	9,638	17,658
South Dakota	25,106	17,142	21,609	18,346
Tennessee	30,139	64,407	28,042	73,300
Texas	71,243	239,236	60,835	220,111
Utah	25,077	2,635	22,068	2,233
Vermont	5,028	15,428	5,066	19,143
Virginia	56,507	95,634	50,517	92,726
Washington	161,809	1,525	178,661	1,530
West Virginia	155,284	80,755	156,967	83,032
Wisconsin	133,638	38,238	126,476	39,670
Wyoming	11,704	4,233	11,042	3,535
Other 2/	46,939	181,277	85,195	222,025
	3,249,457	3,412,008	3,158,718	3,754,353

1/ Revised.

2/ Includes salt used in Puerto Rico (evaporated salt), shipments to noncontiguous Territories of the United States, exports, and some shipments to unspecified destinations.

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MINERAL MARKET REPORT
MMS NO. 1626

PHOSPHATE ROCK INDUSTRY OF THE WESTERN STATES - IDAHO, MONTANA, UTAH AND WYOMING - 1947.

Both the quantity and value of the marketed production of Western States phosphate rock skyrocketed to new levels in 1947, according to reports from the producers to the Bureau of Mines, U. S. Department of the Interior. Marketed production jumped from 492,602 long tons in 1946 to 1,193,288 tons in 1947, an increase of 142 percent. The value also more than doubled--rising from $3,012,157 in 1946 to $6,762,630 in 1947. The output in 1947 came from Idaho, Montana, Utah, and Wyoming.

Idaho, in 1947, with a marketed production of 905,214 long tons, nearly tripled its previous record of 312,658 tons, made in 1946, retaining its position as the leading producing State of the western region. Three companies operating in Idaho reported sales of phosphate rock in 1947. The largest producer, the Simplot Fertilizer Company, Pocatello, Idaho, continued its mining operations on the Fort Hall Indian Reservation, Bingham County. A large part of the production was exported; the balance went into the production of superphosphate at the Simplot plant in Pocatello. The next largest producer, the San Francisco Chemical Co., 216 Pine St., San Francisco 4, California, operated its Waterloo mine, near Montpelier, Bear Lake County, Idaho, during the year. The mined rock was hauled to the processing plant at Montpelier. The larger part of the production was exported, and the balance went into the production of superphosphates. Anaconda Copper Mining Company operated its No. 3 mine at Conda, Caribou County, Idaho, shipping its production largely to the company plant at Anaconda, Montana, principally for conversion to superphosphate and phosphate chemicals. A considerable quantity was sold to other domestic consumers.

The marketed production of phosphate rock in Montana in 1947 was 236,229 long tons, an increase of more than 50,000 tons over its 1946 figure (179,944 tons). Shipments in 1947 were reported by four companies. The Montana Phosphate Products Company, Trail, British Columbia, was the largest producer in Montana. It operated its Anderson, Anaconda, and Graveley mines, as well as several Government leases, in the Garrison district, Powell County. All of the production was exported. Mining operations were also carried on by George Relyea, Garrison, Montana, at the Relyea mine in the Garrison district, and the production shipped to Trail, British Columbia. The Silica Products Co., Inc., 433 Provident Bldg., Tacoma, Washington, is reported to have done development work in 1947 on the phosphate rock deposits of the Elliston district, Powell County, Montana. In the Philipsburg district, Granite County, shipments were made by two companies: Manganese Products, Inc., 4260 West Marginal Way, Seattle, Washington, and the Moonlight Mining Co., Maxville, Montana. The International Minerals & Chemical Corporation, 20 North Wacker Drive, Chicago, Ill., neither produced nor shipped any phosphate rock in 1947 from its property in the

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Prepared by Bertrand L. Johnson and E. M. Tucker, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics & Statistics Division.

Douglas Creek area, Granite County, nor did it process anything through the treatment plant at Sherryl, Montana.

Phosphate-rock operations in Utah in 1947 were confined to those of the Garfield Chemical & Manufacturing Co., Salt Lake City, Utah, which mined and shipped phosphate rock from a Federal lease near Springville, Utah County, for use in iron blast furnaces.

Wyoming became an important phosphate-rock producer in 1947, shipping a total of 51,845 long tons from the Sage and Kemmerer regions of Lincoln County, in the southwestern part of the State. Most of this production came from the Leefe mine of the San Francisco Chemical Co., on land leased from the owner, the Stauffer Chemical Company, San Francisco, Cal., in the Beckwith Hills syncline west of Sage, Wyoming. Practically all of this was exported. The other producer was Phosphate Mines, Inc., Kemmerer, Wyoming, which in 1947 was developing a phosphate rock deposit seven miles north of Kemmerer on the east limb of the Fossil Creek syncline. Several tons of phosphate rock were shipped from an open pit on the property. The John M. Thomas claims and the Thomas-Walker-Doerr Company leases (H. F. Chaney claims) on the Sublette Range anticline in western Lincoln County are reported to have been leased to the Mineral Veins Coalition Company, Salt Lake City, Utah, but only exploratory work on the property has been done.

The average value per ton of the western States phosphate rock sold or used, as reported by producers to the Bureau of Mines, decreased considerably in 1947-- falling from $6.11 in 1946 to $5.67 in 1947. Decreases were reported in both Idaho and Montana.

Western States phosphate rock sold or used by producers, 1943-47.

	Idaho			Montana		
	Long tons	Value at mines		Long tons	Value at mines	
		Total	Average		Total	Average
1943.......	108,916	$561,630	$5.16	119,764	$488,665	$4.08
1944.......	112,565	584,400	5.19	186,434	761,745	4.09
1945.......	123,340	673,627	5.46	150,858	916,288	6.07
1946.......	1/ 312,658	1/ 1,805,103	1/ 5.77	179,944	1,207,054	6.71
1947	1/ 905,214	1/ 4,922,829	1/ 5.44	236,229	1,549,317	6.56

	Wyoming			Total		
	Long tons	Value at mines		Long tons	Value at mines	
		Total	Average		Total	Average
1943.......	----	------	----	228,680	$1,050,295	$4.59
1944.......	----	------	----	298,999	1,346,145	4.50
1945.......	----	------	----	274,198	1,589,915	5.80
1946.......	----	------	----	492,602	3,012,157	6.11
1947.......	51,845	$290,484	$5.60	1,193,288	6,762,630	5.67

1/ Includes Utah.

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MINERAL MARKET REPORT
M. M. S. 1627

DIRECTORY OF FUEL-BRIQUETTING OPERATIONS IN THE UNITED STATES WHICH REPORTED PRODUCTION IN 1947

(Directory of packaged-fuel operations issued separately)

State	Name and address of operator	Location of plant	Year plant put in operation	Raw fuel used, as reported by operator
EASTERN STATES:				
Massachusetts-	STAPLES COAL CO. -------------- 80 Federal St. Boston 10, Mass.	Fall River-	1932	Bituminous low-volatile & Pa. anthracite
New York -----	LAKE COAL CO., INC. ----------- 2516 Lodi St. Syracuse 8, N. Y.	Syracuse---	1947	Pa. anthracite
Pennsylvania--	AMERICAN BRIQUET CO. [1]--------- 1417 Sansom St. Philadelphia 2, Pa.	Lykens ----	1919	Pa. anthracite
Do --------	ECCO MANUFACTURING CO. -------- 1417 Sansom St. Philadelphia 2, Pa.	Pine Grove-	1944	Pa. anthracite
Do --------	READING BRIQUET CO. ----------- 1417 Sansom St. Philadelphia 2, Pa.	Locust Summit	1946	Pa. anthracite + small amount bituminous
Do --------	READING BRIQUET CO. ----------- 1417 Sansom St. Philadelphia 2, Pa.	St.Nicholas	1946	Pa. anthracite + small amount bituminous
West Virginia-	BERWIND FUEL CO. -------------- 141 West Jackson Boulevard Chicago 4, Ill.	Berwind----	1929	Bituminous low-volatile
Do --------	COAL PROCESSING CORP. --------- 230 South Clark St. Chicago 4, Ill.	Glen Rogers	1932	Bituminous low-volatile
CENTRAL STATES:				
Arkansas -----	DIXIE MODERN COAL CO. --------- 200 South 7th St. Fort Smith, Ark.	Fort Smith-	1935	Semianthracite

Prepared by Gertrude S. Goodman and J. A. Corgan, Chief, Anthracite and Coke Section, under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

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DIRECTORY OF FUEL-BRIQUETTING OPERATIONS IN THE UNITED STATES WHICH REPORTED PRODUCTION IN 1947--Continued

State	Name and address of operator	Location of plant	Year plant put in operation	Raw fuel used, as reported by operator
CENTRAL STATES--Continued				
Illinois	CHICAGO BRIQUET CO.[2] 3434 East 95th St. Chicago 17, Ill.	Chicago	1937	Bituminous low-volatile & petroleum coke
Do	COAL PROCESSING CORP. 230 South Clark St. Chicago 4, Ill.	Buckner	1941	Bituminous high-volatile
Do	SUPER-HEAT FUEL CO. INC. R. R. No. 1 Belleville, Ill.	Belleville	1945	Bituminous high-volatile
Kansas	ACME BRIQUETS, INC. 1129 South Mill St. Kansas City 3, Kans.	Kansas City	1946	Arkansas & Oklahoma hard coals
Do	FORT SCOTT BRIQUETTE CO., INC. 1½ North Main Fort Scott, Kans.	Fort Scott	1946	Semianthracite
Michigan	JOHNSON COAL CUBING CO., INC. 9309 Hubbell Ave. Detroit 27, Mich.	Detroit	1939	Bituminous low-volatile & Pa. anthracite
Do	UNITED ICE & FUEL CO. 2202 North Dort Highway Flint 7, Mich.	Flint	1946	Bituminous high- & low-volatile & Pa. anthracite
Minnesota	ECONOMY BRIQUETTING CO.[3] 31 Childs Road St. Paul, Minn.	St. Paul	1935	Semianthracite & petroleum coke
Missouri	ST. LOUIS BRIQUETTE CO. 3183 Morganford Road St. Louis 16, Mo.	St. Louis	1942	Semianthracite
Do	UNIVERSAL COAL WASHING CO. (LESSEE)[4] 230 North Michigan Ave. Chicago 1, Ill.	Kansas City	1909	Arkansas hard coals
Nebraska	OMAHA COKE & COAL BLOX CO.[5] 31st Ave. & Paxton Blvd. Omaha 11, Nebr.	Omaha	1932	Petroleum coke & semianthracite
North Dakota	LEHIGH BRIQUETTING CO. Dickinson, N. Dak.	Dickinson	1929	Lignite char
Wisconsin	BERWIND FUEL CO. 141 West Jackson Boulevard Chicago 4, Ill.	Superior	1912	Pa. anthracite & bituminous low-volatile
Do	COAL PROCESSING CORP. 230 South Clark St. Chicago 4, Ill.	Superior	1935	Pa. anthracite & bituminous low-volatile

DIRECTORY OF FUEL-BRIQUETTING OPERATIONS IN THE UNITED STATES WHICH REPORTED PRODUCTION IN 1947--Continued

State	Name and address of operator	Location of plant	Year plant put in operation	Raw fuel used, as reported by operator
CENTRAL STATES--Continued				
Wisconsin--Continued				
Do----------	THE DUNNEBACKE CO.-------------- 5133 Sixth Ave. Kenosha, Wis.	Kenosha----	1937	Bituminous low-volatile
Do----------	W. H. PUGH COAL CO.------------- 559 State St. Racine, Wis.	Racine-----	1936	Bituminous low-volatile
Do----------	THE C. REISS COAL CO.[6]-------- Reiss Bldg. Sheboygan, Wis.	Ashland----	1931	Bituminous low-volatile & Pa. anthracite
Do----------	THE C. REISS COAL CO.----------- Reiss Bldg. Sheboygan, Wis.	Green Bay--	1936	Bituminous low-volatile & Pa. anthracite
Do----------	THE C. REISS COAL CO.----------- Reiss Bldg. Sheboygan, Wis.	Sheboygan--	1933	Bituminous low-volatile & Pa. anthracite
Do----------	STOTT BRIQUET CO., INC.--------- 2196 University Ave. St. Paul 4, Minn.	Superior---	1909	Pa. anthracite & bituminous low-volatile
Do----------	UBBINK FUEL & DOCK CO.---------- 108 South Wisconsin St. Port Washington, Wis.	Port Washington	1936	Bituminous low-volatile & Pa. anthracite
Do----------	THE UNITED COAL & DOCK CO.------ 700 West Wisconsin Ave. Milwaukee 3, Wis.	Milwaukee--	1928	Bituminous low-volatile & Pa. anthracite
PACIFIC COAST STATES:				
California----	SHELL CHEMICAL CORPORATION [7]-- 100 Bush St. San Francisco 6, Calif.	Pittsburg--	1937	Residual carbon from pyrolysis of natural gas
Oregon--------	PORTLAND GAS & COKE CO.--------- Public Service Bldg. Portland 4, Oreg.	Portland---	1913	Residual carbon from manufacture of oil gas
Washington----	SEATTLE GAS CO.----------------- 1511 Fourth Ave. Seattle 11, Wash.	Seattle----	1938	Residual carbon from manufacture of oil gas

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1/ Operations of American Briquet Co. at Lykens, Pa., discontinued in May 1947.

2/ From 1937 to 1944 operated by the Chicago Coal & Dock Co.; succeeded in 1945 by the Chicago Briquet Co.

3/ From 1935 to 1939 operated by Great Lakes Coal & Coke Co. (name changed to Great Lakes Carbon Corp. in 1939); succeeded by Economy Briquetting Co. in 1944.

4/ From 1909 to 1935 operated by Standard Briquet Fuel Co., and from 1935 to 1942 by the Binkley Coal Co.; succeeded by Universal Coal Washing Co. Lessee in 1943.

5/ From 1932 to 1937 operated by Christopherson & Renstrom Co.; succeeded by Omaha Coke and Coal Blox Co. in 1937.

6/ In 1931 Ashland plant operated by Pittsburgh & Ashland Coal & Dock Co., from 1932 to 1940 by Panda Briquet Co.; succeeded by C. Reiss Coal Co. in 1940.

7/ Operated as Shell Chemical Co. from 1937 to 1943 when name was changed to Shell Chemical Division of Shell Union Oil Corp.; succeeded by Shell Chemical Corporation in 1946.

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MINERAL MARKET REPORT
M. M. S. 1628

DIRECTORY OF PACKAGED-FUEL OPERATIONS IN THE UNITED STATES WHICH REPORTED PRODUCTION IN 1947 [1]

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(Directory of fuel-briquet operations issued separately)

State	Name and address of operator	Location of plant	Year plant put in operation	Raw fuel used, as reported by operator
EASTERN STATES:				
Maine----------	AUGUSTA ICE CO., INC. --------- 87 Water St. Augusta, Maine	Augusta-----	1936	Bituminous low-volatile
Virginia------	C. M. PARRISH COAL CO., INC.[2] Allen Ave. & Marshall St. Richmond 20, Va.	Richmond----	1938	Bituminous low-volatile
Do----------	WRIGHT COAL & OIL CO., INC.---- 1022 W. 40th St. Norfolk 9, Va.	Norfolk-----	1935	Bituminous low-volatile
CENTRAL STATES:				
Illinois------	CRUMB-COLTON CO.--------------- 920 South Main St. Rockford, Ill.	Rockford----	1937	Petroleum coke & bituminous low-volatile
Indiana-------	SUPERIOR COAL CO.[3]------------ 919 Wells St. Fort Wayne 7, Ind.	Fort Wayne--	1937	Bituminous low-volatile
Do----------	WALTON COAL CO.---------------- 1506 South Anthony Blvd. Fort Wayne, Ind.	Fort Wayne--	1935	Bituminous low-volatile
Iowa----------	EDWARDS & BROWNE COAL CO.------ 1604 East 4th St. Sioux City, Iowa	Sioux City--	1938	Semianthracite
Michigan------	WILL ARENS--------------------- 1040 Ohio St. Hancock, Mich.	Hancock-----	1941	Bituminous high- & low-volatile
Do----------	OSCAR F. BLAESS, ESTATE[4]------ 124 West Summit St. Ann Arbor, Mich.	Ann Arbor---	1937	Bituminous low-volatile
Do----------	BRICKER BROTHERS--------------- 24581 Sherwood Ave. Center Line, Mich.	Center Line-	1938	Bituminous low-volatile

Prepared by Gertrude S. Goodman and J. A. Corgan, Chief, Anthracite and Coke Section, under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

DIRECTORY OF PACKAGED-FUEL OPERATIONS IN THE UNITED STATES WHICH REPORTED PRODUCTION IN 1947--Continued

State	Name and address of operator	Location of plant	Year plant put in operation	Raw fuel used, as reported by operator
CENTRAL STATES--Continued				
Michigan--Continued				
Do----------	CEDAR COAL & COKE CO.----------- 15010 West Warren Ave. Dearborn, Mich.	Dearborn----	1939	Bituminous low-volatile
Do----------	CHIVERS COAL CO.---------------- 11818 East Warren Ave. Detroit 13, Mich.	Detroit-----	1939	Bituminous low-volatile
Do----------	ROBERT ERNST & SONS CO.--------- 8960 Hubbell Ave. Detroit 28, Mich.	Detroit-----	1946	Bituminous low-volatile
Do----------	FAMOUS COAL ICE & SUPPLY CO.--- 6056 N. Telegraph Road Dearborn, Mich.	Dearborn----	1938	Bituminous low-volatile
Do----------	JOHNSON COAL CUBING CO. INC.--- 9309 Hubbell Ave. Detroit 27, Mich.	Detroit-----	1932	Bituminous low-volatile
Do----------	LEGION OIL CO.------------------ 1021 West Front St. Monroe, Mich.	Monroe------	1945	Bituminous low-volatile
Do----------	MILLER'S TANK CAR CO.----------- 12541 Grand River Detroit, Mich.	Detroit-----	1944	Bituminous low-volatile
Do----------	NEW WAY PACKAGE COAL MFG.------ 17366 Francis St. Melvindale, Mich.	Melvindale--	1938	Bituminous high-volatile
Do----------	NICHOLSON TERMINAL & DOCK CO.-- P. O. Box 66 River Rouge 18, Mich.	Ecorse------	1939	Bituminous low-volatile
Do----------	PACKAGE FUEL CO. INC. 5/------- 501 East Willard St. Kalamazoo 5, Mich.	Kalamazoo---	1936	Bituminous high- & low-volatile
Do----------	SPEAR AND SONS, INC.----------- 110 South Front St. Marquette, Mich.	Marquette---	1939	Bituminous low-volatile
Do----------	UNITED ICE & FUEL CO. 6/------- 2202 North Dort Highway Flint 7, Mich.	Flint-------	1933	Bituminous low-volatile
Minnesota-----	COAL BLOX CO., INC.------------ 2501 Hiawatha Ave. Minneapolis 4, Minn.	Minneapolis-	1938	Bituminous low-volatile
Do----------	MINNEAPOLIS COAL CO.------------ 74 Lowry Ave., N. Minneapolis 11, Minn.	Minneapolis-	1935	Bituminous low-volatile & petroleum coke

DIRECTORY OF PACKAGED-FUEL OPERATIONS IN THE UNITED STATES WHICH REPORTED PRODUCTION IN 1947--Continued

State	Name and address of operator	Location of plant	Year plant put in operation	Raw fuel used, as reported by operator
CENTRAL STATES--Continued				
Minnesota--Continued				
Do----------	ST. PAUL PACKAGED FUEL CO., INC 459 East 8th St. St. Paul 1, Minn.	St. Paul----	1936	Bituminous low-volatile
Do----------	SIMONSON CASHWAY CO.----------- St. Cloud, Minn.	St. Cloud---	1947	Bituminous low-volatile
Nebraska------	DONOHO COAL CO. [7] ----------- 917 South 39th St. Omaha 5, Nebr.	Omaha-------	1934	Semianthracite & petroleum coke
Ohio----------	ACKERMAN COAL CO.-------------- 1212 Elm St. Toledo, Ohio	Toledo------	1940	Bituminous low-volatile
Do----------	AIR CITY FUEL CO.-------------- 1257 Air City Ave. Dayton 3, Ohio	Dayton------	1945	Bituminous low-volatile
Do----------	BARTAK COAL & SUPPLY CO.------- 5381 Dunham Road Maple Heights (near Cleveland) Ohio	Maple Heights	1943	Bituminous low-volatile
Do----------	DIAMOND SUPPLY & COAL INC. [8]-- 4120 East 104th St. Cleveland, Ohio	Cleveland---	1934	Bituminous low-volatile
Do----------	DIPPEL COAL CO.---------------- 6706 Morgan Ave. Cleveland 4, Ohio	Cleveland---	1939	Bituminous low-volatile
Do----------	THE ERIE COAL & COKE CO.------- 17230 Waterloo Road Cleveland, Ohio	Cleveland---	1937	Bituminous low-volatile
Do----------	W. A. GOSLINE & CO. INC.------- 1202 Lagrange St. Toledo 2, Ohio	Toledo------	1935	Bituminous low-volatile
Do----------	THE MOELDER COAL CO.----------- Chickering St. & B. & O. R.R. Cincinnati 32, Ohio	Cincinnati--	1938	Bituminous low-volatile & petroleum coke
Do----------	MURRAY CITY COAL & ICE CO.----- 1334 Edgehill Road Columbus 8, Ohio	Columbus----	1940	Bituminous low-volatile
Do----------	PACIFIC COAL & SUPPLY INC. [9]-- 6317 Kinsman Road Cleveland 4, Ohio	Cleveland---	1936	Bituminous low-volatile
Do----------	PACKAGE COAL CO. [10]----------- 300 Mt. Vernon Ave. Columbus, Ohio	Columbus----	1932	Bituminous low-volatile
Do----------	RALPH COAL CO.----------------- 873 Western Ave. Toledo, Ohio	Toledo------	1940	Bituminous low-volatile

DIRECTORY OF PACKAGED-FUEL OPERATIONS IN THE UNITED STATES WHICH REPORTED PRODUCTION IN 1947--Continued

State	Name and address of operator	Location of plant	Year plant put in operation	Raw fuel used as reported by operator
CENTRAL STATES--Continued				
Wisconsin-----	THE CLEVELAND-CLIFFS IRON CO.-- 1460 Union Commerce Bldg. Cleveland 14, Ohio	Green Bay---	1940	Bituminous low-volatile
Do----------	FELLENZ COAL & DOCK CO.11/----- 945 North Broadway Milwaukee 2, Wis.	Milwaukee---	1937	Bituminous high-volatile
Do----------	F. HURLBUT CO.----------------- 201 Cedar St. Green Bay, Wis.	Green Bay---	1937	Bituminous low-volatile & petroleum coke
Do----------	JOHNSON COAL CO.--------------- 1127 North Chatham St. Racine, Wis.	Racine------	1937	Bituminous low-volatile
Do----------	FRANK KRIZ & CO.--------------- 648 23d St. Oshkosh, Wis.	Oshkosh-----	1937	Bituminous low-volatile & petroleum coke
Do----------	SAWYER FUEL & SUPPLY CO.------- Gordon Bent Bldg. 127 Main St. Green Bay, Wis.	Sawyer------	1943	Bituminous low-volatile
Do----------	SHEBOYGAN COAL CO.------------- 627 South 7th St. Sheboygan, Wis.	Sheboygan---	1936	Bituminous low-volatile
Do----------	SUPERIOR PACKAGED FUEL CO.----- 1005 Winter St. Superior, Wis.	Superior----	1938	Bituminous low-volatile
Do----------	VALLEY COAL COMPANY, INC.------ 234 West Johnson St. Fond du Lac, Wis.	Fond du Lac-	1936	Bituminous low-volatile & petroleum coke

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1/ In addition to the plants listed herein, there were 14 other plants operating in 1947 (1 in Illinois, 9 in Michigan, 1 in Missouri, and 3 in Ohio).

2/ Name changed June 30, 1946, from Parrish Package Fuel Co. Inc. to C. M. Parrish Coal Co., Inc.

3/ From 1937 to 1940 operated by Eagle Coal & Supply Co.; succeeded by Superior Coal Co. in 1940.

4/ Name changed Aug. 4, 1947, from Oscar F. Blaess to Oscar F. Blaess, Estate.

5/ Name changed June 15, 1947, from Package Fuel Co. to Package Fuel Co. Inc.

6/ From 1933 to 1940 operated by Modern Fuel Co.; succeeded by United Ice & Fuel Co. in 1940.

7/ From 1934 to 1938 operated as Cash Coal System Co.; succeeded by Donoho Clark Coal Co. in 1938; name changed to Donoho Coal Co. in 1940.

8/ Name changed June 1946 from Diamond Supply & Coal Co. to Diamond Supply & Coal Inc.

9/ Operated as Pacific Coal & Oil Co. from 1936 to 1937 when name was changed to Pacific Coal & Supply Inc.

10/ From 1932 to 1937 operated by Fuel Brick Co. and in 1938 by Gordon Package Coal Co.; operations resumed by Package Coal Co. in 1946.

11/ Packaged-fuel operations permanently abandoned Sept. 1, 1947.

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MINERAL MARKET REPORT
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THE ASBESTOS INDUSTRY IN 1947

A record volume of 25,139 short tons of asbestos was mined in 1947, 74 percent more than in 1946, according to the Bureau of Mines, United States Department of the Interior. Domestic production came principally from Vermont with minor amounts from Arizona, North Carolina, Georgia, and California. Imports provided 96 percent of the asbestos used in the United States in 1947. Canada supplied 91 percent while Southern Rhodesia and the Union of South Africa supplied 5 percent. Demand has been in excess of supply throughout 1947 being particularly strong for fiber for asbestos cement products and floor tile. The bulk of the asbestos consumed is the chrysotile variety, however amosite, blue, and tremolite are required for special uses.

Salient statistics for asbestos in 1946-47 are given in the following table.

Salient statistics of the asbestos industry in the United States, 1946-47

	1946		1947	
	Short tons	Value	Short tons	Value
Domestic asbestos--				
Produced:				
Chrysotile	13,989	(1)	24,462	(1)
Amphibole	437	(1)	677	(1)
Total produced	14,426	(1)	25,139	(1)
Sold or used by producers:				
Chrysotile	13,645	$499,260	23,586	$912,340
Amphibole	430	5,504	449	6,218
Total sold or used by producers	14,075	504,764	24,035	918,558
Imports (unmanufactured)	456,688	18,731,378	594,839	29,821,519
Exports (unmanufactured)	11,011	1,395,367	2,087	316,414
Apparent consumption 2/	459,752	17,840,775	616,787	30,423,663
Exports of asbestos products	(1)	9,263,092	(1)	12,823,480

1/ Figure not available.
2/ Quantity sold or used by producers, plus imports, minus exports.

Prepared by Lawrence G. Houk and F. M. Barsigian under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch; Economics and Statistics Service.

(over)

Certain grades of amosite and long fiber low-iron chrysotile have been designated as strategic and Congress has authorized stockpiling, but shortage of supply on the world market has limited procurement.

Domestic consumption rose to 616,787 short tons, a 34 percent increase above 1946, chrysotile was 97 percent of the total, amosite 2 percent, blue 1 percent and amphibole a fraction of a percent. Amosite asbestos, used extensively in making 85 percent magnesia and other insulation, is obtained only in South Africa. Blue asbestos (crocidolite) obtained chiefly in South Africa is used mainly in asbestos cement pipe. Tremolite asbestos which is of value for filtering chemicals is mined in California. Canada furnished nearly all shingle stock, paper stock and other of the non-spinning grades required. Africa supplied longer grades of chrysotile.

Each variety of asbestos is marketed under a different set of specifications. Chrysotile is generally sold on a basis of fiber length, yet fiber strength, flexibility and color are important considerations. Blue is valuable for fiber length, strength, and chemical resistance; amosite for its heat insulation properties, and tremolite for its resistance to acids.

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FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

FOR RELEASE JULY 24, 1948.

Mineral Market Reports
M.M.S. No. 1630

METAL MINING IN MONTANA, 1947 - FINAL ANNUAL FIGURES

An increase of 172 percent in the zinc output set the pace for a marked improvement in most phases of Montana's metal-mining industry in 1947, compared with 1946, according to the Salt Lake Office of the Bureau of Mines, United States Department of the Interior. Remaining metals, except copper, also gained appreciably in output — lead 95 percent, silver 93, and gold 28; copper output however was 1 percent below that in 1946. Increases in the average prices of silver, copper, and lead and the pronounced gains in yield of four of the metals reversed the four-year downtrend in total value of the metals in 1947. Lead and zinc each increased 157 percent in value; silver, 75; and gold and copper, 28 percent each, to give an overall gain of 61 percent in total value — from $29,957,206 in 1946 to $48,342,816 in 1947. Of the total value in 1947, copper contributed 50 percent, zinc nearly 22, silver 12, lead about 10, and gold about 7.

No labor strikes affected the industry in the State in 1947, labor was more plentiful than in 1946, and production of ore moved at a rather uniform rate throughout the year. Outstanding in State metal mining in 1947 was the marked expansion in production of zinc-lead ore from the Butte Hill mine and dumps of the Anaconda Copper Mining Co. at Butte, which was the chief cause for the 39-percent increase in State output of ore — from 2,234,958 tons in 1946 to 3,100,013 tons in 1947.

The value of the metal production herein reported has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: Gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.210 per pound ($0.162); lead, $0.144 per pound ($0.109); zinc, $0.115 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired June 30, 1947.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office under the supervision of Charles W. Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Mine production of gold, silver, copper, lead, and zinc in Montana, 1946-47, in terms of recovered metals

Metals	1946		1947	
	Quantity	Value	Quantity	Value
Gold, fine ounces...	70,507	$2,467,745	90,124	$3,154,340
Silver, fine ounces.	3,273,140	2,644,697	6,326,190	5,725,202
Copper, pounds......	116,962,000	18,947,844	115,800,000	24,318,000
Lead, pounds........	16,560,000	1,805,040	32,216,000	4,639,104
Zinc, pounds........	33,540,000	4,091,880	91,358,000	10,506,170
Total value.........	-------------	29,957,206	------------	48,342,816

Mine production of gold, silver, copper, lead, and zinc in Montana in 1947, by months, in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January.......	5,716	371,817	10,844,000	1,600,000	3,420,000
February......	5,540	454,546	10,118,000	2,266,000	5,552,000
March.........	7,176	531,605	11,326,000	2,368,000	6,958,000
April.........	8,284	584,855	10,438,000	3,120,000	8,324,000
May...........	9,488	620,064	9,504,000	3,432,000	8,284,000
June..........	7,783	534,611	8,952,000	2,682,000	8,386,000
July..........	7,462	571,806	9,092,000	2,704,000	8,376,000
August........	8,352	570,700	8,088,000	2,912,000	8,670,000
September.....	8,278	512,516	7,826,000	2,766,000	8,348,000
October.......	7,612	506,470	9,426,000	2,810,000	8,134,000
November......	7,517	539,655	10,068,000	2,706,000	8,548,000
December......	6,916	527,545	10,118,000	2,850,000	8,358,000
Total, 1947...	90,124	6,326,190	115,800,000	32,216,000	91,358,000
1946...	70,507	3,273,140	116,962,000	16,560,000	33,540,000

Ore sold or treated in Montana in 1947, with content in terms of recovered metals

Source	Mines producing	Ore (Short tons)	Gold (Fine ounces)	Silver (Fine ounces)
Dry and siliceous gold ore........	69	186,813	28,903	48,502
Dry and siliceous gold-silver ore.	33	53,385	4,259	260,812
Dry and siliceous silver ore......	45	47,532	933	298,165
Copper ore........................	19	1,838,580	12,872	1,784,945
Lead ore	70	12,508	729	70,864
Zinc ore..........................	8	2/ 10,758	58	32,776
Zinc-lead ore.....................	27	950,437	14,936	3,824,884
Total, lode mines.................	3/ 243	3,100,013	62,690	6,320,948
Total, placers....................	54	-----------	27,434	5,242
Total, 1947.......................	297	3,100,013	90,124	6,326,190
1946.......................	235	2,234,958	70,507	3,273,140

Source	Copper (Pounds)	Lead (Pounds)	Zinc (Pounds)
Dry and siliceous gold ore........	73,262	36,343	35,958
Dry and siliceous gold-silver ore.	156,854	112,862	120,400
Dry and siliceous silver ore......	151,227	825,678	826,867
Copper ore........................	1/ 111,907,310	-------------	-------------
Lead ore..........................	39,237	1,645,401	235,839
Zinc ore..........................	7,406	404,952	2,083,402
Zinc-lead ore.....................	3,464,704	29,190,764	88,055,534
Total, lode mines.................	115,800,000	32,216,000	91,358,000
Total, placers....................	---------------	-------------	-------------
Total, 1947.......................	115,800,000	32,216,000	91,358,000
1946.......................	4/ 116,962,000	16,560,000	33,540,000

1/ Includes 6,004,223 pounds recovered from precipitates.

2/ Includes 7,403 tons of old smelter slag fumed.

3/ A mine producing more than 1 class of ore is counted but once is arriving at total for all classes.

4/ Includes 6,376,070 pounds recovered from precipitates.

SILVER BOW COUNTY

Ore production in Silver Bow County in 1947 increased 44 percent above that in 1946, zinc 473, lead 351, gold 186, and silver 117; copper production however declined 1 percent. The total value of the five metals in 1947 was 81 percent greater than in 1946.

In 1947, the Anaconda Copper Mining Co. produced 15 percent of the State gold, 74 percent of the silver, 92 percent of the copper, 49 percent of the lead, 71 percent of the zinc, and 78 percent of the ore.

Production of ore and of gold, silver, copper, lead, and zinc in Silver Bow County, Mont., 1946-47, in terms of recovered metals.

	1946		1947	
	Quantity	Value	Quantity	Value
Ore, short tons........	1,827,606	------------	2,624,915	------------
Gold, fine ounces.....	6,926	$242,410	19,801	$693,035
Silver, fine ounce....	2,417,969	1,953,719	5,252,011	4,753,070
Copper, pounds........	115,809,000	18,761,058	114,374,000	24,018,540
Lead, pounds..........	4,713,000	513,717	21,269,500	3,062,808
Zinc, pounds..........	14,216,500	1,734,413	81,425,000	9,363,875
Total value...........	------------	23,205,317	------------	41,891,328

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary

JAMES BOYD, Director

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FOR RELEASE JULY 14, 1948

MINERAL MARKET REPORT
M.M.S. NO. 1631

COKE AND COAL CHEMICAL MATERIALS IN 1947 1/

According to reports submitted by coke producers to the Bureau of Mines, United States Department of the Interior, total production of coke in 1947 increased 26 percent over 1946, an achievement made possible by the 24 percent gain in oven coke output and the 46 percent rise in beehive production. The 26 percent increase compares favorably with the 30 percent rise in output of pig iron and is substantially greater than the improvement in industry generally, which was only 10 percent, according to the Federal Reserve Board Index of physical volume of industrial production.

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The coke industry suffered no major work stoppages in 1947 and operated at a fairly uniform rate throughout the year. Production of oven coke averaged 183,331 tons per day in the first quarter of the year and, although dropping slightly in the second and third quarters, increased considerably in the last quarter, averaging 189,517 tons per day, the highest rate ever maintained for a corresponding period. The gain in daily rate of production in the last quarter was due, principally, to the addition of new coke ovens. The beehive segment of the industry staged a remarkable comeback in 1947 and a number of plants which had closed down during and immediately after the end of World War II were rehabilitated and put back in blast. Output of beehive coke climbed to the highest point since 1942 and no doubt would have been greater had more good coking coal been available. The average daily rate of beehive output, although fluctuating more than that of oven coke, was relatively stable throughout the year, reflecting the heavy demand for coke.

The total quantity of coal carbonized in all ovens in 1947 nearly equaled the 1944 record and was 26 percent higher than the 1946 figure. It is to be noted, however, that the amount of coal used in the manufacture of oven coke in 1947 exceeded the 1944 total by 149,441 tons, although coke output was 306,246 tons lower. The decline in coke output was due, principally, to the poorer quality of coal charged and also to the deterioration of a large number of overage ovens which have been operated at exceptionally high rates since the beginning of World War II. The poor quality of coal used is reflected in the yield of oven coke which declined from 71.01 percent in 1944 to 70.58 percent in 1947, although the percentage of breeze recovered per ton of coal carbonized increased from 5.29 percent to 5.79 percent in the same period.

The overall demand for bituminous coal in 1947 together with increases in mining and transportation costs caused the average value of coking coal delivered to all coke plants to rise $0.96 per ton or 17 percent above the previous maximum of 1946. The average cost of coal delivered to oven-coke plants advanced $1.01 per ton to $6.78, a new peak. Coal costs for beehive ovens also soared to a new level, rising $0.84 per ton over the 1946 figure.

Supplies of coke were not sufficient to meet increased requirements and market prices were considerably higher than in 1946. According to trade journal quotations, prices of foundry coke in 5 major markets in December 1947 were on the average 31 percent higher than in December 1946, and 69 percent greater than prices at the end of 1939. Spot prices quoted on Connellsville furnace coke showed increases of 40 and 206 percent in the same period. Reports received by the Bureau from oven- and beehive-coke producers showed substantial gains over 1946 in the price of all coke sold f.o.b. ovens (merchant sales).

The high level of operations in the iron and steel industry in 1947 required enormous tonnages of metallurgical fuel and nearly 79 percent of the total coke distributed was shipped to iron blast furnaces and 5 percent to foundry cupolas. The demand was equally as strong in other industries and about 6 percent was earmarked for the manufacture of producer gas and water gas, 5 percent for other industrial purposes, and 5 percent for domestic or household use. The total tonnage of domestic coke sold by producers in 1947 was the lowest in 22 years and clearly illustrates the terrific demand that existed for industrial coke.

Because of shortages of coke in the United States, shipments to countries outside its continental limits were drastically curtailed. As a consequence, total exports declined sharply and were 32 percent below the 1946 total, according to data compiled by the Bureau of Mines from records of the Department of Commerce. Canada, which has always been a part of the natural market for a number of coke producers, received 70 percent of the total foreign shipments. Imports, although doubling in quantity over 1946, were small - representing less than 0.1 percent of the total indicated consumption.

Preliminary data from the Bureau's 1947 annual survey of employment at coke plants shows that 20,800 men were employed at oven-coke plants and worked 60,780,000 man-hours, increases over 1946 of 1,894 men and 7,232,953 man-hours. The number of men employed at beehive plants increased from 2,504 in 1946 to 2,900 in 1947 and the man-hours worked increased from 4,163,075 to 5,990,000. The gains in employment in both the oven- and the beehive industries were due to the reactivation of a number of plants which had been idle for several years. The increases in man-hours worked were attributable to the absences of major work stoppages.

The sharp rise in oven-coke output in 1947 was accompanied by substantial increases over 1946 in the production of crude tar, light oil, ammonia (NH_3 equivalent of all forms), and gas. The output of crude tar, light oil, and ammonia each advanced about 23 percent while gas, because of an improvement in yield, increased about 24 percent.

The active market for all coal products in 1947 influenced prices and receipts from sales reached new levels. The total realization from the sale of all coal-chemical materials in 1947 increased 41 percent over 1946 and reached $222,093,651. The gross value of all coke, breeze, and coal-chemical materials in 1947 exceeded 1 billion dollars for the first time and was 55 percent higher than the 1946 figure and 39 percent above the previous maximum of 1944.

1/ This report contains selected tables showing final statistics of the coke industry for 1947. A complete report with detailed tables to be released as a chapter of Minerals Yearbook, 1947, will be distributed to the regular mailing list.

Prepared by Maxine M. Otero, J. A. DeCarlo, and J. A. Corgan, Chief, Anthracite and Coke Section under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

TABLE 1. - SALIENT STATISTICS OF THE COKE INDUSTRY IN THE UNITED STATES IN 1947

	Coke ovens	Beehive ovens	Total
Coke produced -			
At merchant plants:			
Net tons	13,897,699	(1)	(1)
Value	$161,906,508		
At furnace plants:			
Net tons	52,860,850		
Value	$549,193,901		
Total:			
Net tons	66,758,549	6,687,301	73,445,850
Value	$711,100,409	$65,305,111	$776,405,520
Screenings or breeze produced:			
Net tons	5,474,113	128,027	5,602,140
Value	$16,165,758	$229,010	$16,394,768
Coal charged into ovens:			
Bituminous:			
Net tons	94,325,132	10,474,536	104,799,668
Value	$639,631,521	$46,419,236	$686,050,757
Average per ton	$6.78	$4.43	$6.55
Anthracite:			
Net tons	262,196	....	262,196
Value	$1,542,303	....	$1,542,303
Average per ton	$5.88	....	$5.88
Total:			
Net tons	94,587,328	10,474,536	105,061,864
Value	$641,173,824	$46,419,236	$687,593,060
Average per ton	$6.78	$4.43	$6.54
Average yield in percent of coal charged:			
Coke	70.58	63.84	69.91
Breeze (at plant actually recovering)	5.79	1.22	5.68
Ovens:			
In existence January 1	14,494	12,864	27,358
In existence December 31	14,728	13,443	28,171
Dismantled during year	240	243	483
In course of construction December 31	572	....	572
Annual coke capacity December 31 .... net tons	72,549,100	8,844,400	81,393,500
Coke used by producer -			
In blast furnaces:			
Net tons	37,694,964	291,766	37,986,730
Value	$378,744,040	$2,941,524	$381,685,564
In foundries:			
Net tons	88,332	....	88,332
Value	$948,273	....	$948,273
To make producer gas:			
Net tons	826,875	....	826,875
Value	$7,234,535	....	$7,234,535
To make water gas:			
Net tons	1,541,471	....	1,541,471
Value	$14,253,894	....	$14,253,894
For other purposes:			
Net tons	435,997	3,031	439,028
Value	$4,212,078	$29,272	$4,241,350
Coke sold -			
To financially affiliated plants -			
For blast furnace use:			
Net tons	11,945,200	1,806,330	13,751,530
Value	$136,337,047	$15,056,934	$151,393,981
For foundry use:			
Net tons	30,265	....	30,265
Value	$706,220	....	$706,220
For manufacture of water gas:			
Net tons	725,066	....	725,066
Value	$7,860,918	....	$7,860,918
For other purposes:			
Net tons	284,563	23,617	308,180
Value	$3,002,361	$255,848	$3,258,209
To other consumers -			
For blast furnace use:			
Net tons	2,628,277	3,269,968	5,898,245
Value	$28,788,099	$32,218,058	$61,006,157
For foundry use:			
Net tons	3,115,577	415,827	3,531,404
Value	$46,076,770	$4,966,055	$51,042,825
For manufacture of water gas:			
Net tons	1,385,906	268,168	1,654,074
Value	$14,990,610	$2,950,701	$17,941,311
For other industrial use:			
Net tons	1,961,639	572,458	2,534,097
Value	$22,146,983	$6,526,761	$28,673,744
For domestic use:			
Net tons	3,917,402	59,926	3,977,328
Value	$43,835,479	$603,567	$44,439,046

Continued on next page

TABLE 1. - SALIENT STATISTICS OF THE COKE INDUSTRY IN THE UNITED STATES IN 1947 - Continued

	Coke ovens	Beehive ovens	Total
Disposal of screenings or breeze:			
Used by producer -			
For raising steam:			
Net tons	3,482,874	28,866	3,511,740
Value	$9,662,237	$55,000	$9,717,237
To make producer or water gas:			
Net tons	43,877	....	43,877
Value	$178,372	....	$178,372
For other purposes:			
Net tons	637,814	6	637,820
Value	$1,809,970	$73	$1,810,043
Sold:			
Net tons	1,106,720	65,063	1,171,783
Value	$3,950,108	$144,980	$4,095,088
Average receipts per ton sold (merchant sales):			
Furnace coke	$10.95	$9.85	$10.34
Foundry coke	$14.79	$11.94	$14.45
Water gas coke	$10.82	$11.00	$10.85
Other industrial coke	$11.29	$11.40	$11.32
Domestic coke	$11.19	$10.07	$11.17
Screenings or breeze	$3.57	$2.23	$3.49
Stocks on January 1, 1948:			
Furnace coke .... net tons	376,097	10,181	386,278
Foundry coke .... do	12,362	50	12,412
Domestic and other coke .... do	631,397	2,150	633,547
Screenings or breeze .... do	1,204,140	730	1,204,870
Exports .... do	(1)	(1)	835,059
Imports .... do	(1)	(1)	104,093
Indicated consumption .... do	(1)	(1)	72,611,413
Coal-chemical materials produced:			
Tar .... gallons	736,174,480	....	736,174,480
Ammonium sulfate or equivalent .... pounds	1,824,622,871	....	1,824,622,871
Gas .... M cubic feet	971,262,280	....	971,262,280
Burned in coking process .... percent	37.71	....	37.71
Surplus sold or used .... do	61.05	....	61.05
Wasted .... do	1.24	....	1.24
Crude light oil .... gallons	254,978,463	....	254,978,463
Yield of coal-chemical materials per ton of coal:			
Tar .... gallons	7.78	....	7.78
Ammonium sulfate or equivalent .... pounds	19.66	....	19.66
Gas .... M cubic feet	10.27	....	10.27
Crude light oil .... gallons	2.75	....	2.75
Value of coal-chemical materials sold:			
Tar:			
Sold	$30,981,953	....	$30,981,953
Used by producer	$9,407,100	....	$9,407,100
Ammonia (sulfate and liquor)	$28,196,121	....	$28,196,121
Gas (surplus)	$112,008,007	....	$112,008,007
Crude light oil and derivatives	$34,783,301	....	$34,783,301
Other coal-chemical materials 2/	$16,124,269	....	$16,124,269
Total value of coke and breeze produced and coal-chemical materials sold 3/	$958,766,918	$65,534,121	$1,024,301,039

1/ Not separated. 2/ Includes naphthalene, tar derivatives, and miscellaneous coal-chemical materials.
3/ Includes value of tar used by producer.

TABLE 2. - NUMBER AND PRODUCTION OF OVEN-COKE PLANTS CONNECTED WITH IRON FURNACES AND OF OTHER PLANTS IN THE UNITED STATES, 1913, 1918, 1937, AND 1945-47

Year	Number of active plants		Coke produced (net tons)		Percent of production	
	Furnace plants	Merchant plants	Furnace plants	Merchant plants	Furnace plants	Merchant plants
1913	20	16	9,277,832	3,436,868	73.0	27.0
1918	36	24	19,220,342	6,777,238	73.9	26.1
1937	43	42	36,134,209	13,076,539	73.4	26.6
1945	53	34	48,695,172	13,399,116	78.4	21.6
1946	53	32	41,540,962	12,388,485	77.0	23.0
1947	54	32	52,860,850	13,897,699	79.2	20.8

TABLE 3. - STATISTICAL TRENDS OF THE COKE INDUSTRY IN THE UNITED STATES, 1937 AND 1944-47

	1937	1944	1945	1946	1947
Production:					
Oven coke net tons	49,210,748	67,064,795	62,094,288	53,929,447	66,758,549
Beehive coke do	3,164,721	6,973,022	5,213,893	4,568,401	6,687,301
Total do	52,375,469	74,037,817	67,308,181	58,497,848	73,445,850
Percent oven coke	94.0	90.6	92.3	92.2	90.9
Stocks of coke, end of year net tons	2,595,287	1,124,685	931,813	928,766	1,032,237
Exports, all coke do	526,683	866,835	1,478,746	1,231,327	835,059
Imports, all coke do	286,364	63,004	51,964	52,188	104,093
Indicated consumption, all coke do	51,271,929	72,971,401	66,074,271	57,321,756	72,611,413
Disposal, all coke sold or used:					
Furnace coke do	36,751,969	57,481,353	51,002,921	43,700,492	57,636,505
Foundry coke do	2,038,822	2,511,854	2,636,731	2,996,202	3,650,001
Other industrial coke (including producer and water gas) do	4,597,894	6,978,062	6,937,553	6,593,870	8,028,791
Domestic coke do	8,107,518	6,717,543	6,775,508	5,096,733	3,977,328
Carbonizing equipment:					
Coke ovens in existence, end of year	12,718	14,580	14,510	14,494	14,728
Beehive in existence, end of year	12,194	16,318	12,179	12,864	13,443
Coke ovens under construction, end of year	259	180	335	824	572
Cost of coal charged, oven-coke plants, average per ton	$3.74	$5.08	$5.28	$5.77	$6.78
Prices of coke:					
Average spot price of Connellsville furnace coke, f.o.b. ovens	$4.29	$7.00	$7.29	$8.13	$10.49
Average realization on oven coke sold (merchant sales):					
Furnace coke	$4.34	$7.59	$7.87	$8.85	$10.95
Foundry coke	$8.47	$11.03	$11.48	$12.62	$14.79
Other industrial coke (including water gas).	$6.08	$8.12	$8.35	$9.58	$11.13
Domestic coke	$6.53	$8.63	$8.69	$9.90	$11.19
Yield of coal-chemical materials per ton of coal charged:					
Tar gallons	8.67	8.13	7.95	7.82	7.78
Ammonium sulfate or equivalent pounds	21.84	20.29	20.22	19.79	19.66
Crude light oil gallons	2.86	2.87	2.84	2.77	2.75
Surplus gas sold or used M cubic feet	6.66	6.58	6.33	6.29	6.27
Average gross receipts for coal-chemical materials per ton of coke produced:					
Tar sold and used	$0.502	$0.458	$0.447	$0.466	$0.605
Ammonia and its compounds	$0.326	$0.324	$0.356	$0.361	$0.423
Crude light oil and its derivatives (including naphthalene)	$0.435	$0.552	$0.503	$0.467	$0.566
Surplus gas sold or used	$1.483	$1.403	$1.413	$1.542	$1.678
Total coal-chemical materials including breeze	$2.974	$3.102	$3.069	$3.207	$3.710

TABLE 4. - POTENTIAL MAXIMUM ANNUAL COKE CAPACITY OF ALL OVEN-COKE PLANTS IN EXISTENCE IN THE UNITED STATES, 1937 AND 1943-47

Year	Plants	Ovens	Potential maximum annual coke capacity (net tons)	Percent of change from 1937
1937	87	12,718	62,727,100	....
1943	92	14,253	71,378,400	+ 13.8
1944	89	14,580	72,330,200	+ 15.3
1945	88	14,510	71,399,100	+ 13.8
1946	87	14,494	71,112,600	+ 13.4
1947	86	14,728	72,549,100	+ 15.7

TABLE 5. - RELATIONSHIP OF PRODUCTION TO POTENTIAL MAXIMUM CAPACITY 1/ AT OVEN-COKE PLANTS IN THE UNITED STATES, 1937 AND 1944-47, BY MONTHS, IN PERCENT

Month	1937	1944	1945	1946	1947
January	83.0	95.8	89.1	61.8	91.0
February	83.5	96.6	89.6	47.4	92.0
March	84.9	95.7	90.2	81.3	91.7
April	84.9	96.2	86.3	64.6	90.1
May	84.6	95.5	88.4	41.7	89.6
June	78.6	94.3	85.3	73.9	89.1
July	83.2	91.5	88.3	86.2	86.9
August	86.0	91.1	82.4	88.4	90.5
September	86.1	89.8	84.0	89.4	89.3
October	76.0	91.1	64.1	89.2	91.3
November	62.8	90.8	80.5	82.4	91.9
December	53.1	89.7	83.2	77.2	92.6
Year	78.8	93.1	84.3	73.8	90.5

1/ Capacity of all ovens in existence, whether active of idle, based upom maximum daily capacity times days in month.

TABLE 6. - COKE PRODUCED, VALUE, NUMBER OF OVENS, COAL CHARGED, AND AVERAGE YIELD IN THE UNITED STATES IN 1947, BY STATES
(Exclusive of screenings or breeze)

State	Oven coke						
	Plants	Ovens	Coal charged (net tons)	Yield of coke from coal (percent)	Coke produced (net tons)	Value of coke at ovens	
						Total	Per ton
Alabama	7	1,313	8,281,171	70.88	5,869,738	$47,086,856	$8.02
California	1	90	536,708	61.90	332,244	(1)	(1)
Colorado	1	262	1,246,796	68.15	849,697	(1)	(1)
Illinois	8	856	5,359,054	71.01	3,805,374	49,267,806	12.95
Indiana	5	1,863	11,933,222	73.62	8,785,687	117,614,296	13.39
Maryland	1	422	2,747,426	71.89	1,975,201	(1)	(1)
Massachusetts	2	215	1,650,740	72.45	1,196,010	(1)	(1)
Michigan	4	568	3,897,667	72.32	2,818,941	32,406,972	11.50
Minnesota	3	196	1,252,573	71.67	897,739	10,367,425	11.55
New Jersey	2	304	1,987,921	72.05	1,432,210	(1)	(1)
New York	8	1,142	8,069,260	70.27	5,670,333	58,629,308	10.34
Ohio	15	2,309	14,205,640	70.88	10,069,237	98,973,704	9.83
Pennsylvania	13	3,585	23,981,096	68.70	16,474,893	165,391,784	10.04
Tennessee	1	44	325,898	74.23	241,925	(1)	(1)
Texas	2	125	372,298	70.64	263,006	(1)	(1)
Utah	2	308	1,613,308	60.48	975,772	(1)	(1)
Virginia	....	......	....	....	....	....	.....
West Virginia	5	612	4,034,917	69.95	2,822,381	24,140,981	8.55
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	6	514	3,091,633	73.69	2,278,161	27,043,913	11.87
Undistributed	....	......	....	....	(1)	80,177,364	11.03
Total 1947	86	14,728	94,587,328	70.58	66,758,549	711,100,409	10.65
At merchant plants	32	3,047	19,285,896	72.06	13,897,699	161,906,508	11.65
At furnace plants	54	11,681	75,301,432	70.20	52,860,850	549,193,901	10.39
Total 1946	85	14,494	76,359,486	70.63	53,929,447	450,060,212	8.35

State	Beehive coke						Total	
	Ovens	Coal charged (net tons)	Yield of coke from coal (percent)	Coke produced (net tons)	Value of coke at ovens		Coke produced (net tons)	Value of coke at ovens
					Total	Per ton		
Alabama	......	....	....	....	....	.....	5,869,738	$47,086,856
California	......	....	....	....	....	.....	332,244	(1)
Colorado	(2)	32,063	67.02	21,489	(1)	(1)	871,186	(1)
Illinois	......	....	....	....	....	.....	3,805,374	49,267,806
Indiana	......	....	....	....	....	.....	8,785,687	117,614,296
Maryland	......	....	....	....	....	.....	1,975,201	(1)
Massachusetts	......	....	....	....	....	.....	1,196,010	(1)
Michigan	......	....	....	....	....	.....	2,818,941	32,406,972
Minnesota	......	....	....	....	....	.....	897,739	10,367,425
New Jersey	......	....	....	....	....	.....	1,432,210	(1)
New York	......	....	....	....	....	.....	5,670,333	58,629,308
Ohio	......	....	....	....	....	.....	10,069,237	98,973,704
Pennsylvania	11,305	9,217,730	64.15	5,913,133	$56,665,562	$9.58	22,388,026	222,057,346
Tennessee	......	....	....	....	....	.....	241,925	(1)
Texas	......	....	....	....	....	.....	263,006	(1)
Utah	297	127,461	53.11	67,693	(1)	(1)	1,043,465	(1)
Virginia	750	366,993	57.73	211,876	2,508,223	11.84	211,876	2,508,223
West Virginia	896	583,566	64.74	377,825	4,151,739	10.99	3,200,206	28,292,720
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	195	146,723	64.94	95,285	(1)	(1)	2,373,446	(1)
Undistributed	......	....	....	(1)	1,979,587	10.73	....	109,200,864
Total 1947	13,443	10,474,536	63.84	6,687,301	65,305,111	9.77	73,445,850	776,405,520
At merchant plants	......	....	....	....	....	.....	....	....
At furnace plants	......	....	....	....	....	.....	....	....
Total 1946	12,864	7,167,424	63.74	4,568,401	36,669,170	8.03	58,497,848	486,729,382

1/ Included under "Undistributed." 2/ 16 ovens abandoned in May 1947.

TABLE 7. - OVEN COKE PRODUCED IN THE UNITED STATES AND USED BY PRODUCER OR SOLD IN 1947, BY STATES
(Exclusive of screenings or breeze)

State	Produced		Used by producer -				Sold	
			In blast furnaces		For other purposes 1/		Furnace 2/	
	Net tons	Value	Net tons	Value	Net tons	Value	Net tons	Value
Alabama	5,869,738	$47,086,856	4,625,100	$33,161,955	17,679	$123,965	257,759	(5)
California	332,244	(5)	325,570	(5)	200	(5)	....	....
Colorado	849,697	(5)	792,469	(5)	4,955	(5)	....	....
Illinois	3,805,374	49,267,806	1,792,678	20,341,212	51,294	489,658	1,365,251	$19,925,968
Indiana	8,785,687	117,614,296	5,978,032	78,332,089	177,640	2,183,166	1,865,696	27,193,467
Maryland	1,975,201	(5)	1,973,545	(5)	310	(5)	....	....
Massachusetts	1,196,010	(5)	....	....	127,652	(5)	185,963	(5)
Michigan	2,818,941	32,406,972	1,215,338	(5)	171,316	1,752,241	318,599	(5)
Minnesota	897,739	10,367,425	524,663	(5)	21,658	111,366	61,613	(5)
New Jersey	1,432,210	(5)	....	....	277,156	(5)	25,712	(5)
New York	5,670,333	58,629,308	1,558,123	(5)	1,169,579	10,464,914	1,722,019	16,231,865
Ohio	10,069,237	98,973,704	7,606,972	73,643,890	96,477	1,048,265	1,032,233	9,978,518
Pennsylvania	16,474,893	165,391,784	8,686,509	79,809,172	182,114	1,520,897	6,687,323	72,728,949
Tennessee	241,925	(5)	102,769	(5)	....	....	7,599	(5)
Texas	263,006	(5)	148,879	(5)	....	....	....	....
Utah	975,772	(5)	860,530	(5)	1,836	(5)	606	(5)
West Virginia	2.822.381	24,140,981	1,503,787	(5)	409,841	2,926,265	330,658	2,488,134
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin ..	2,278,161	27,043,913	....	....	182,968	1,797,000	712,446	6,380,997
Undistributed	....	80,177,364	....	93,455,722	....	4,231,043	....	10,197,248
Total 1947 ..	66,758,549	711,100,409	37,694,964	378,744,040	2,892,675	26,648,780	14,573,477	165,125,146
At merchant plants	13,897,699	161,906,508	....	....	2,483,320	22,754,570	2,150,138	23,666,098
At furnace plants	52,860,850	549,193,901	37,694,964	378,744,040	409,355	3,894,210	12,423,339	141,459,048
Total 1946 ..	53,929,447	450,060,212	29,705,380	242,177,121	2,651,950	20,552,803	10,700,676	74,558,929

State	Sold - Continued							
	Foundry 3/		Industrial and other (including water gas) 4/		Domestic		Total	
	Net tons	Value	Net tons	Value	Net tons	Value	Net tons	Value
Alabama	474,235	$6,062,002	365,553	$4,036,119	125,518	(5)	1,223,065	$13,771,520
California	....	....	3,277	(5)	....	....	3,277	(5)
Colorado	2,924	(5)	41,711	(5)	1,263	(5)	45,898	(5)
Illinois	354,850	5,818,957	92,143	1,030,487	133,390	$1,468,458	1,945,634	28,243,870
Indiana	459,826	(5)	128,895	(5)	217,211	1,880,615	2,671,628	37,737,104
Maryland	....	....	....	....	....	....	....	....
Massachusetts	103,368	(5)	230,400	(5)	526,030	(5)	1,045,761	(5)
Michigan	567,823	(5)	210,295	2,413,060	337,656	3,403,787	1,434,373	18,239,740
Minnesota	16,726	(5)	101,003	(5)	201,207	2,679,917	380,549	5,241,731
New Jersey	58,146	(5)	514,367	(5)	551,497	(5)	1,149,722	(5)
New York	....	....	460,850	5,021,529	719,539	7,299,706	2,902,408	28,553,100
Ohio	284,042	3,608,445	845,545	8,776,689	230,656	2,181,973	2,392,476	24,545,625
Pennsylvania	234,201	3,647,968	396,530	4,453,660	248,841	2,743,123	7,566,895	83,573,700
Tennessee............	37,259	(5)	95,902	(5)	....	....	140,760	(5)
Texas	41,927	(5)	39,797	(5)	....	....	81,724	(5)
Utah	....	....	80,217	(5)	4,697	(5)	85,520	(5)
West Virginia	99,450	(5)	398,738	3,185,733	65,265	(5)	894,111	7,694,507
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	411,065	6,536,582	351,951	4,303,290	554,632	7,158,084	2,030,094	24,378,953
Undistributed	....	21,109,036	....	14,780,305	....	15,019,816	....	31,764,637
Total 1947	3,145,842	46,782,990	4,357,174	48,000,872	3,917,402	43;835,479	25,993,895	303,744,487
At merchant plants ..	2,457,091	37,021,730	3,565,989	39,769,352	3,081,343	36,885,988	11,254,561	137,343,168
At furnace plants ...	688,751	9,761,260	791,185	8,231,520	836,059	6,949,491	14,739,334	166,401,319
Total 1946	2,573,668	32,457,550	3,271,477	30,772,262	4,947,085	48,977,854	21,492,906	186,766,595

1/ Comprises 88,332 tons valued at $948,273 used in foundries; 826,875 tons, $7,234,535 to make producer gas; 1,541,471 tons $14,253,894 to make water gas; and 435,997 tons, $4,212,078 for other purposes. 2/ Includes 11,945,200 tons valued at $136,337,047 sold to financially affiliated plants. 3/ Includes 30,265 tons valued at $706,220 sold to financially affiliated plants. 4/ Includes 725,066 tons valued at $7,860,918 for manufacture of water gas and 284,563 tons, $3,002,361 for other industrial use sold to financially affiliated plants; and 1,385,906 tons, $14,990,610 for manufacture of water gas sold to other consumers. 5/ Included under "Undistributed."

TABLE 8. - BEEHIVE COKE PRODUCED IN THE UNITED STATES AND USED BY PRODUCER OR SOLD IN 1947, BY STATES

State	Produced		Used by producer -				Sold	
			In blast furnaces		For other purposes		Furnace 1/	
	Net tons	Value	Net tons	Value	Net tons	Value	Net tons	Value
Colorado	21,489	(3)	....	....	......	....	....	....
Kentucky	95,285	(3)	....	....	......	....	73,950	(3)
Pennsylvania	5,913,133	$56,665,562	291,766	$2,941,524	2,997	$28,959	4,759,854	$43,989,521
Utah	67,693	(3)	....	....	......	....	....	....
Virginia	211,876	2,508,223	....	....	......	....	68,891	(3)
West Virginia	377,825	4,151,739	....	....	34	313	173,603	1,758,250
Undistributed	....	1,979,587	....	....	......	....	....	1,527,221
Total: 1947	6,687,301	65,305,111	291,766	2,941,524	3,031	29,272	5,076,298	47,274,992
1946	4,568,401	36,669,170	51,367	581,918	1,079	10,770	3,243,069	24,753,998

State	Sold - Continued							
	Foundry		Other industrial (including water gas) 2/		Domestic		Total	
	Net tons	Value	Net tons	Value	Net tons	Value	Net tons	Value
Colorado	112	(3)	23,927	(3)	....	....	24,039	(3)
Kentucky	1,721	(3)	19,614	(3)	....	....	95,285	(3)
Pennsylvania	315,445	$3,704,246	507,351	$5,643,577	57,492	$578,692	5,640,142	$53,916,036
Utah	604	(3)	67,078	(3)	....	....	67,682	(3)
Virginia	28,023	369,643	113,062	1,331,012	1,895	(3)	211,871	2,508,665
West Virginia	69,922	(3)	133,211	1,517,169	539	(3)	377,275	4,146,077
Undistributed	....	892,166	....	1,241,552	....	24,875	....	2,007,146
Total: 1947	415,827	4,966,055	864,243	9,733,310	59,926	603,567	6,416,294	62,577,924
1946	353,995	3,302,073	737,903	6,482,629	149,648	1,186,250	4,484,615	35,724,950

1/ Includes 1,806,330 tons valued at $15,056,934 sold to financially affiliated plants for blast furnace use.
2/ Includes 23,617 tons valued at $255,848 sold to financially affiliated plants for other industrial use and 268,168 tons. $2.950,701 for manufacture of water gas. 3/ Included under "Undistributed."

TABLE 9. - COKE AND BREEZE SOLD AND LOADED AT PLANTS IN THE UNITED STATES FOR SHIPMENT IN 1947, IN NET TONS

State	Coke				Breeze			
	In railroad cars	In boats	In trucks	Total	In railroad cars	In boats	In trucks	Total
Oven coke:								
Alabama	1,203,879	....	19,186	1,223,065	124,802	.....	.....	124,802
California	3,277	....	....	3,277	4,937	.....	1,485	6,422
Colorado	44,194	....	1,704	45,898	29,443	.....	30	29,473
Illinois	1,928,653	....	16,981	1,945,634	150,046	.....	1,714	151,760
Indiana	2,593,659	....	77,969	2,671,628	193,952	.....	172	194,124
Maryland	....	....	....	....	42,301	20,665	......	62,966
Massachusetts	518,427	75,904	451,430	1,045,761	7,092	6,478	4,904	18,474
Michigan	1,263,323	56,118	114,932	1,434,373	58,126	13,661	23	71,810
Minnesota	346,326	....	34,223	380,549	44,589	......	......	44,589
New Jersey	490,127	363,283	296,312	1,149,722	48	4,779	150	4,977
New York	2,494,231	16,409	391,768	2,902,408	41,991	1,073	244	43,308
Ohio	2,141,364	129,184	121,928	2,392,476	114,796	6,087	3,509	124,392
Pennsylvania	7,114,801	280,130	171,964	7,566,895	97,172	5,338	1,948	104,458
Tennessee	140,760	....	....	140,760	2,331	......	......	2,331
Texas	81,724	....	....	81,724	2,796	......	2	2,798
Utah	78,193	....	7,327	85,520	49,239	......	......	49,239
West Virginia	889,153	....	4,958	894,111	42,741	......	120	42,861
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	1,625,062	67,894	337,137	2,030,093	18,583	3,188	6,165	27,936
	22,957,153	988,922	2,047,819	25,993,894	1,024,985	61,269	20,466	1,106,720
At merchant plants	8,928,189	553,952	1,772,419	11,254,560	194,534	25,881	15,476	235,891
At furnace plants	14,028,964	434,970	275,400	14,739,334	830,451	35,388	4,990	870,829
Beehive coke:								
Colorado	24,039	....	....	24,039	596	......	......	596
Kentucky	95,285	....	....	95,285	....	......	......	....
Pennsylvania	5,536,562	96,605	6,975	5,640,142	44,599	14,563	205	59,367
Utah	66,335	....	1,347	67,682	2,756	......	33	2,789
Virginia	211,774	....	97	211,871	2,311	......	......	2,311
West Virginia	377,275	....	....	377,275	....	......	......	....
	6,311,270	96,605	8,419	6,416,294	50,262	14,563	238	65,063

TABLE 10. - OVEN AND BEEHIVE COKE AND BREEZE DISTRIBUTED TO EACH STATE IN 1947, IN NET TONS
(Based upon reports from all United States producers showing destination of coke used by producer or sold in 1947. Does not include imported coke which totaled 104,093 tons in 1947)

Consuming State	Coke							Coke breeze
	Furnace use	Foundry use	Making producer gas	Making water gas	Other industrial use	Domestic use	Total	
Alabama	4,878,979	211,721	....	646	196,946	84,515	5,372,807	220,460
Arizona	....	4,921	....	....	751	....	5,672	....
Arkansas	....	1,009	....	....	108	36	1,153	....
California	325,570	70,078	....	....	82,824	....	478,472	32,760
Colorado	792,469	16,259	....	....	44,795	828	854,351	97,131
Connecticut	....	53,631	60,805	126,172	36,341	127,166	404,115	36,451
Delaware	....	4,267	....	303	3,261	395	8,226	1,317
District of Columbia	....	64	....	22,362	25	....	22,451	....
Florida	....	2,098	....	43,772	2,375	2,506	50,751	3,524
Georgia	....	21,993	....	12,570	17,150	10,630	62,343	2,943
Idaho	....	103	....	....	3,371	340	3,814	64
Illinois	5,195,610	316,499	11,909	42,060	120,336	197,628	5,884,042	336,167
Indiana	6,060,216	181,229	24,375	44,710	220,650	182,527	6,713,707	504,061
Iowa	....	70,269	....	1,178	26,814	3,314	101,575	8,011
Kansas	....	15,711	....	....	895	211	16,817	4,447
Kentucky	693,967	29,650	....	73,177	18,118	39,892	854,804	49,366
Louisiana	....	9,928	....	....	50,059	2,209	62,196	62
Maine	....	9,583	....	14,132	....	33,139	56,854	....
Maryland	2,328,795	39,298	....	429	119,131	730	2,488,383	173,308
Massachusetts	185,963	75,433	112,806	178,675	31,232	537,289	1,121,398	121,947
Michigan	1,272,467	626,143	....	27,542	314,323	389,926	2,630,401	215,892
Minnesota	540,485	44,275	6,144	11,187	53,996	178,808	834,895	104,558
Mississippi	....	1,528	....	....	347	627	2,502	40
Missouri	....	86,204	....	7,040	45,427	22,173	160,844	9,074
Montana	....	1,596	....	....	19,015	....	20,611	28,114
Nebraska	....	5,042	....	7,300	3,380	453	16,175	74
Nevada	....	....	....	....	6,811	....	6,811	....
New Hampshire	....	6,968	....	63	90	34,607	41,728	....
New Jersey	....	118,996	96,874	388,217	112,629	406,721	1,123,437	130,546
New Mexico	....	330	....	....	3,442	....	3,772	....
New York	3,471,176	172,990	320,502	1,024,942	420,984	693,287	6,103,881	466,809
North Carolina	....	15,980	....	2,951	3,146	4,261	26,338	599
North Dakota	....	153	....	....	415	606	1,174	....
Ohio	10,892,890	358,625	....	281,087	281,136	198,788	12,012,526	805,504
Oklahoma	....	4,460	....	....	78	35	4,573	17,120
Oregon	....	5,885	....	....	14,059	....	19,944	....
Pennsylvania	18,034,062	416,535	87,221	236,881	369,125	219,603	19,363,427	1,347,511
Rhode Island	....	14,584	33,615	16,851	1,124	87,954	154,128	20,938
South Carolina	....	5,647	....	1,920	2,233	6,293	16,093	3,965
South Dakota	....	243	....	....	216	1,059	1,518	....
Tennessee	107,285	111,385	....	3,466	104,715	6,947	333,798	143,706
Texas	148,879	49,299	....	1,226	79,483	79	278,966	7,879
Utah	861,136	11,955	....	....	64,569	4,357	942,017	106,611
Vermont	....	7,526	....	2,503	1,764	13,699	25,492	....
Virginia	72,192	48,336	....	353,669	98,252	351	572,800	1,145
Washington	....	7,613	....	....	6,219	....	13,832	....
West Virginia	1,765,282	47,069	....	925,951	110,717	951	2,849,970	204,022
Wisconsin	....	179,523	72,624	66,825	21,780	251,072	591,824	126,673
Wyoming	....	....	....	....	2,006	....	2,006	....
	57,627,423	3,482,634	826,875	3,919,807	3,116,663	3,746,012	72,719,414	5,332,799
Exported	9,082	167,367	....	804	164,642	231,316	573,211	32,421
	57,636,505	3,650,001	826,875	3,920,611	3,281,305	3,977,328	73,292,625	5,365,220

TABLE 11.- STOCKS OF FURNACE, FOUNDRY, AND DOMESTIC COKE AND OF BREEZE IN THE UNITED STATES ON JANUARY 1, 1948, BY STATES, IN NET TONS

State	Coke				Breeze
	Furnace	Foundry	Domestic and other	Total	
Oven coke:					
Alabama	51,921	1,306	16,218	69,445	36,341
California	6,131	....	1,600	7,731	31,161
Colorado	9,135	....	....	9,135	5,528
Illinois	32,274	1,136	971	34,381	110,821
Indiana	23,345	1,094	11,299	35,738	84,034
Maryland	29,144	....	....	29,144	277,111
Massachusetts	637	260	87,078	87,975	5,322
Michigan	4,081	1,100	5,699	10,880	28,055
Minnesota	976	138	6,914	8,028	63,989
New Jersey	....	....	45,110	45,110	3,286
New York	38,810	40	191,424	230,274	64,271
Ohio	57,716	880	10,566	69,162	146,712
Pennsylvania	103,950	794	53,091	157,835	266,628
Tennessee	1,810	165	....	1,975	2,000
Texas	377	4,896	27,130	32,403	9,885
Utah	12,328	....	44,397	56,725	36,401
West Virginia	2,614	143	28,869	31,626	23,198
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	848	410	101,031	102,289	9,397
	376,097	12,362	631,397	1,019,856	1,204,140
At merchant plants	7,171	4,672	497,404	509,247	142,808
At furnace plants	368,926	7,690	133,993	510,609	1,061,332
Beehive coke:					
Pennsylvania	9,036	30	1,214	10,280	494
Utah	....	....	500	500	216
Virginia	480	14	376	870	20
West Virginia	665	6	60	731	....
	10,181	50	2,150	12,381	730

TABLE 12. - QUANTITY AND VALUE AT OVENS OF COAL USED IN MANUFACTURING COKE IN THE UNITED STATES IN 1947, BY STATES

State	Coal used (net tons)	Cost of coal		Coal per ton of coke	
		Total	Average	Net tons	Cost
Oven coke:					
Alabama	8,281,171	$46,166,032	$5.57	1.41	$7.87
California	536,708	(1)	(1)	1.62	(1)
Colorado	1,246,796	(1)	(1)	1.47	(1)
Illinois	5,359,054	42,896,818	8.00	1.41	11.27
Indiana	11,933,222	95,581,868	8.01	1.36	10.88
Maryland	2,747,426	(1)	(1)	1.39	(1)
Massachusetts	1,650,740	(1)	(1)	1.38	(1)
Michigan	3,897,667	26,447,425	6.79	1.38	9.38
Minnesota	1,252,573	10,436,794	8.33	1.40	11.63
New Jersey	1,987,921	(1)	(1)	1.39	(1)
New York	8,069,260	62,615,897	7.76	1.42	11.04
Ohio	14,205,640	96,007,777	6.76	1.41	9.53
Pennsylvania	23,981,096	140,669,051	5.87	1.46	8.54
Tennessee	325,898	(1)	(1)	1.35	(1)
Texas	372,298	(1)	(1)	1.42	(1)
Utah	1,613,308	(1)	(1)	1.65	(1)
West Virginia	4,034,917	19,034,108	4.72	1.43	6.74
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	3,091,633	23,686,180	7.66	1.36	10.40
Undistributed	....	77,631,874	7.41	1.44	10.68
	94,587,328	641,173,824	6.78	1.42	9.60
At merchant plants	19,285,896	143,173,468	7.42	1.39	10.30
At furnace plants	75,301,432	498,000,356	6.61	1.42	9.42
Beehive coke:					
Colorado	32,063	(1)	(1)	1.49	(1)
Kentucky	146,723	(1)	(1)	1.54	(1)
Pennsylvania	9,217,730	40,931,725	4.44	1.56	6.92
Utah	127,461	(1)	(1)	1.88	(1)
Virginia	366,993	1,589,305	4.33	1.73	7.50
West Virginia	583,566	2,492,164	4.27	1.54	6.60
Undistributed	....	1,406,042	4.59	1.66	7.62
	10,474,536	46,419,236	4.43	1.57	6.94

1/ Included under "Undistributed."

TABLE 13. - AVERAGE COST PER NET TON OF COAL CARBONIZED AT OVEN-COKE PLANTS IN THE UNITED STATES, 1937 AND 1943-47, BY STATES

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State	1937	1943	1944	1945	1946	1947	State	1937	1943	1944	1945	1946	1947
Alabama	$2.33	$3.60	$4.03	$4.47	$4.96	$5.57	Pennsylvania ...	$2.98	$3.96	$4.28	$4.40	$4.79	$5.87
Illinois ...	4.62	5.62	6.04	6.16	6.70	8.00	West Virginia ..	2.54	3.19	3.32	3.56	3.84	4.72
Indiana	4.71	5.85	6.11	6.23	6.75	8.01	Other States 1/.	4.53	5.59	5.72	5.94	6.51	7.46
Michigan ...	4.16	4.57	5.39	5.55	5.97	6.79	United States average	3.74	4.75	5.08	5.28	5.77	6.78
Minnesota ..	5.24	6.02	6.35	6.52	6.86	8.33							
New York ...	4.55	5.59	5.88	6.04	6.71	7.76	Cost of coal per ton of coke ..	5.27	6.70	7.16	7.45	8.17	9.60
Ohio	3.76	4.73	5.03	5.27	5.72	6.76							

1/ California, Colorado, Connecticut, Kentucky, Maryland, Massachusetts, Missouri, New Jersey, Rhode Island, Tennessee, Texas, Utah, and Wisconsin.

TABLE 14. - COAL CONSUMED IN COKE OVENS IN THE UNITED STATES, 1937 AND 1946-47, BY MONTHS, IN NET TONS

Month	1937			1946			1947		
	Coke oven	Beehive	Total	Coke oven	Beehive	Total	Coke oven	Beehive	Total
January	6,198,700	426,600	6,625,300	5,415,600	656,400	6,072,000	7,961,500	929,100	8,890,600
February	5,679,900	458,500	6,138,400	3,765,900	595,000	4,360,900	7,244,600	841,700	8,086,300
March	6,387,000	556,800	6,943,800	7,116,500	749,700	7,866,200	8,031,800	948,300	8,980,100
April	6,183,800	480,800	6,664,600	5,519,300	34,500	5,553,800	7,665,800	698,000	8,363,800
May	6,368,500	509,700	6,878,200	3,670,900	44,600	3,715,500	7,865,400	957,500	8,822,900
June	5,729,200	430,500	6,159,700	6,330,200	593,600	6,923,800	7,593,500	738,700	8,332,200
July	6,217,200	441,700	6,658,900	7,565,100	757,300	8,322,400	7,703,900	684,400	8,388,300
August	6,425,800	401,100	6,826,900	7,795,600	847,000	8,642,600	8,035,800	923,200	8,959,000
September	6,220,700	392,800	6,613,500	7,587,400	784,400	8,371,800	7,666,300	930,300	8,596,600
October	5,664,800	351,600	6,016,400	7,828,500	899,900	8,728,400	8,289,500	982,400	9,271,900
November	4,527,000	264,000	4,791,000	7,001,100	583,700	7,584,800	8,101,600	877,800	8,979,400
December	3,972,800	212,700	4,185,500	6,763,400	621,300	7,384,700	8,427,600	963,200	9,390,800
	69,575,400	4,926,800	74,502,200	76,359,500	7,167,400	83,526,900	94,587,300	10,474,600	105,061,900

TABLE 15. - WASHED AND UNWASHED COAL USED IN MANUFACTURING COKE IN THE UNITED STATES IN 1947, BY STATES IN WHICH USED, IN NET TONS

State	Coke ovens				Beehive ovens		
	Bituminous		Anthracite	Total	Bituminous		
	Washed	Unwashed			Washed	Unwashed	Total
Alabama	8,056,683	224,488	....	8,281,171	....	....	....
California	483,119	53,589	....	536,708	....	....	....
Colorado	1,246,796	....	....	1,246,796	32,063	....	32,063
Illinois	1,101,281	4,235,841	21,932	5,359,054	....	....	....
Indiana	107,000	11,826,222	....	11,933,222	....	....	....
Maryland	....	2,747,426	....	2,747,426	....	....	....
Massachusetts	....	1,650,740	....	1,650,740	....	....	....
Michigan	130,446	3,667,564	99,657	3,897,667	....	....	....
Minnesota	30,364	1,222,209	....	1,252,573	....	....	....
New Jersey	....	1,987,921	....	1,987,921	....	....	....
New York	624,974	7,399,919	44,367	8,069,260	....	....	....
Ohio	4,433,508	9,755,748	16,384	14,205,640	....	....	....
Pennsylvania	9,271,935	14,663,383	45,778	23,981,096	1,332,808	7,884,922	9,217,730
Tennessee	136,134	189,764	....	325,898	....	....	....
Texas	224,155	148,143	....	372,298	....	....	....
Utah	....	1,613,308	....	1,613,308	....	127,461	127,461
Virginia	....	....	....	....	....	366,993	366,993
West Virginia	1,388,083	2,638,011	8,823	4,034,917	....	583,566	583,566
Connecticut, Kentucky, Missouri, Rhode Island and Wisconsin	94,788	2,971,590	25,255	3,091,633	....	146,723	146,723
	27,329,266	66,995,866	262,196	94,587,328	1,364,871	9,109,665	10,474,536
At merchant plants	1,603,745	17,626,006	56,145	19,285,896	....	....	....
At furnace plants	25,725,521	49,369,860	206,051	75,301,432	....	....	....

TABLE 16. -STOCKS OF BITUMINOUS COAL AT OVEN-COKE PLANTS IN THE UNITED STATES AT END OF EACH MONTH, 1937 AND 1945-47, IN NET TONS

Month	1937	1945	1946	1947
January	8,030,871	5,694,501	5,665,131	5,919,455
February	8,687,389	5,610,111	6,392,605	6,644,699
March	9,638,317	5,452,042	8,269,360	7,516,564
April	8,543,774	4,456,204	4,116,899	5,417,111
May	8,187,883	4,428,452	2,565,010	6,454,434
June	7,770,256	5,128,071	3,629,535	7,095,832
July	7,432,741	4,752,624	3,871,156	4,803,819
August	7,455,932	4,502,647	5,229,600	5,483,859
September	7,760,533	4,624,488	5,925,815	6,216,127
October	8,066,938	3,665,833	6,593,083	7,300,931
November	8,114,094	4,607,047	6,355,321	8,206,627
December	7,273,403	4,873,546	5,238,762	9,147,808

TABLE 17. - COAL PURCHASED FOR MANUFACTURING OVEN COKE IN THE UNITED STATES IN 1947, BY STATES WHERE PRODUCED AND WHERE CONSUMED AND BY MERCHANT AND FURNACE PLANTS, IN NET TONS

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State where coal consumed	Coal produced in -														
	Alabama	Arkansas	Colorado	Illinois	Indiana	Kentucky	Maryland	New Mexico	Oklahoma	Pennsylvania	Tennessee	Utah	Virginia	West Virginia	Total
Alabama:															
Merchant plants	1,147,563	......	......	......	......	......	......	......	......	......	......	......	......	114,017	1,261,580
Furnace plants	7,100,079	......	......	......	......	......	......	......	......	......	......	......	......	8,733	7,108,812
Total Alabama	8,247,642	......	......	......	......	......	......	......	......	......	......	......	......	122,750	8,370,392
California:															
Furnace plant	......	58,776	......	......	......	......	......	......	......	......	......	508,822	......	......	567,598
Colorado:															
Furnace plant	......	58,317	906,315	......	......	......	......	537,300	51,417	......	......	......	......	......	1,553,349
Illinois:															
Merchant plants	......	......	......	......	......	54,805	......	......	......	14,766	......	......	......	593,479	663,050
Furnace plants	......	5,075	......	226,873	64,291	1,954,976	......	......	......	197,500	......	......	19,752	2,168,285	4,636,752
Total Illinois	......	5,075	......	226,873	64,291	2,009,781	......	......	......	212,266	......	......	19,752	2,761,764	5,299,802
Indiana:															
Merchant plants	......	......	......	......	16,082	......	......	......	......	......	......	......	86,185	1,062,160	1,164,427
Furnace plants	......	......	......	225,907	154	5,682,305	......	......	......	107,000	......	......	980,303	4,589,321	11,584,990
Total Indiana	......	......	......	225,907	16,236	5,682,305	......	......	......	107,000	......	......	1,066,488	5,651,481	12,749,417
Maryland:															
Furnace plant	......	......	......	......	......	9,815	......	......	......	65,987	......	......	30,857	2,701,850	2,808,509
Massachusetts:															
Merchant plants	......	......	......	......	......	90,124	......	......	......	......	......	......	52,779	1,514,976	1,657,879
Michigan:															
Merchant plants	......	......	......	......	......	4,696	......	......	......	248,667	......	......	182,331	687,858	1,123,552
Furnace plants	......	......	......	......	......	1,297,180	......	......	......	272,521	......	......	67,363	1,327,588	2,964,652
Total Michigan	......	......	......	......	......	1,301,876	......	......	......	521,188	......	......	249,694	2,015,446	4,088,204
Minnesota:															
Merchant plant	......	......	......	30,364	......	49,862	......	......	......	10,461	17,310	......	......	319,213	427,210
Furnace plants	......	......	......	......	......	486,803	......	......	......	......	......	......	......	381,092	867,895
Total Minnesota	......	......	......	30,364	......	536,665	......	......	......	10,461	17,310	......	......	700,305	1,295,105
New Jersey:															
Merchant plants	......	......	......	......	......	188,773	......	......	......	2,027	......	......	153,159	1,696,229	2,040,188
New York:															
Merchant plants	......	......	......	......	......	319,335	......	......	......	1,808,149	......	......	107,656	1,898,193	4,133,333
Furnace plants	......	......	......	......	......	635,144	......	......	......	2,673,652	......	......	75,029	776,302	4,160,127
Total New York	......	......	......	......	......	954,479	......	......	......	4,481,801	......	......	182,685	2,674,495	8,293,460
Ohio:															
Merchant plants	......	......	......	......	......	188,936	......	......	......	......	......	......	189,948	1,365,876	1,744,760
Furnace plants	......	......	......	......	......	2,345,355	......	......	......	5,834,275	1,466	......	66,382	4,370,739	12,618,217
Total Ohio	......	......	......	......	......	2,534,291	......	......	......	5,834,275	1,466	......	256,330	5,736,615	14,362,977
Pennsylvania:															
Merchant plants	......	......	......	......	......	45,238	......	......	......	13,011	......	......	......	814,760	873,009
Furnace plants	......	......	......	......	......	275,509	42,115	......	......	20,494,439	......	......	5,290	3,043,788	23,861,141
Total Pennsylvania	......	......	......	......	......	320,747	42,115	......	......	20,507,450	......	......	5,290	3,858,548	24,734,150
Tennessee:															
Furnace plant	......	......	......	......	......	90,000	......	......	......	......	136,134	......	43,687	......	269,821
Texas:															
Furnace plant	7,408	56,988	......	......	......	......	......	51,095	311,889	......	......	......	......	......	427,380
Utah:															
Furnace plants	......	182	92	......	......	......	......	......	......	......	......	1,613,034	......	......	1,613,308
West Virginia:															
Merchant plants	......	......	......	......	......	......	......	......	......	12,470	......	......	......	1,451,688	1,464,158
Furnace plants	......	......	......	......	......	16,860	......	......	......	2,409,331	......	......	......	73,723	2,499,914
Total West Virginia	......	......	......	......	......	16,860	......	......	......	2,421,801	......	......	......	1,525,411	3,964,072
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin:															
Merchant plants	......	......	......	21,955	48,404	165,752	......	......	......	51,630	......	......	15,597	2,926,516	3,229,854
	8,255,050	179,338	906,407	505,099	128,931	13,901,468	42,115	588,395	363,306	34,215,886	154,910	2,121,856	2,076,318	33,886,386	97,325,465
At merchant plants	1,147,563	......	......	52,319	64,486	1,107,521	......	......	......	2,161,181	17,310	......	787,655	14,444,965	19,783,000
At furnace plants	7,107,487	179,338	906,407	452,780	64,445	12,793,947	42,115	588,395	363,306	32,054,705	137,600	2,121,856	1,288,663	19,441,421	77,542,465

TABLE 18. - COAL PURCHASED FOR MANUFACTURING OVEN COKE IN THE UNITED STATES IN 1947, BY STATES WHERE CONSUMED AND BY VOLATILE CONTENT 1/

State where coal consumed	High-volatile		Medium-volatile		Low-volatile		Total coal purchased (net tons)
	Net tons	Percent of total	Net tons	Percent of total	Net tons	Percent of total	
Alabama:							
Merchant plants	142,582	11.3	1,004,981	79.7	114,017	9.0	1,261,580
Furnace plants	270,734	3.8	6,829,345	96.1	8,733	.1	7,108,812
Total Alabama	413,316	4.9	7,834,326	93.6	122,750	1.5	8,370,392
California:							
Furnace plant	508,822	89.6	....	......	58,776	10.4	567,598
Colorado:							
Furnace plant	1,443,615	92.9	....	......	109,734	7.1	1,553,349
Illinois:							
Merchant plants	56,141	8.5	380,782	57.4	226,127	34.1	663,050
Furnace plants	3,180,157	68.6	....	......	1,456,595	31.4	4,636,752
Total Illinois	3,236,298	61.1	380,782	7.1	1,682,722	31.8	5,299,802
Indiana:							
Merchant plants	549,441	47.2	128,635	11.0	486,351	41.8	1,164,427
Furnace plants	6,409,415	55.3	....	......	5,175,575	44.7	11,584,990
Total Indiana	6,958,856	54.6	128,635	1.0	5,661,926	44.4	12,749,417
Maryland:							
Furnace plant	1,412,156	50.3	510,618	18.2	885,735	31.5	2,808,509
Massachusetts:							
Merchant plants	962,521	58.1	376,982	22.7	318,376	19.2	1,657,879
Michigan:							
Merchant plants	441,233	39.3	182,331	16.2	499,988	44.5	1,123,552
Furnace plants	2,352,733	79.4	....	......	611,919	20.6	2,964,652
Total Michigan	2,793,966	68.3	182,331	4.5	1,111,907	27.2	4,088,204
Minnesota:							
Merchant plant	289,983	67.9	38,421	8.9	98,806	23.2	427,210
Furnace plants	486,803	56.1	....	......	381,092	43.9	867,895
Total Minnesota	776,786	60.0	38,421	3.0	479,898	37.0	1,295,105
New Jersey:							
Merchant plants	1,036,596	50.8	610,379	29.9	393,213	19.3	2,040,188
New York:							
Merchant plants	3,025,794	73.2	654,185	15.8	453,354	11.0	4,133,333
Furnace plants	2,758,063	66.3	430,859	10.4	971,205	23.3	4,160,127
Total New York	5,783,857	69.7	1,085,044	13.1	1,424,559	17.2	8,293,460
Ohio:							
Merchant plants	1,057,357	60.6	159,761	9.2	527,642	30.2	1,744,760
Furnace plants	8,828,985	70.0	341,505	2.7	3,447,727	27.3	12,618,217
Total Ohio	9,886,342	68.8	501,266	3.5	3,975,369	27.7	14,362,977
Pennsylvania:							
Merchant plants	338,401	38.8	407,818	46.7	126,790	14.5	873,009
Furnace plants	20,291,395	85.0	455,050	1.9	3,114,696	13.1	23,861,141
Total Pennsylvania	20,629,796	83.4	862,868	3.5	3,241,486	13.1	24,734,150
Tennessee:							
Furnace plant	107,794	40.0	118,340	43.9	43,687	16.1	269,821
Texas:							
Furnace plants	139,571	32.7	287,093	67.2	716	.1	427,380
Utah:							
Furnace plants	1,613,126	100.0	....	......	182	(2)	1,613,308
West Virginia:							
Merchant plants	1,368,416	93.5	....	......	95,742	6.5	1,464,158
Furnace plants	2,324,282	93.0	....	......	175,632	7.0	2,499,914
Total West Virginia	3,692,698	93.2	....	......	271,374	6.8	3,964,072
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin:							
Merchant plants	1,939,919	60.1	499,196	15.4	790,739	24.5	3,229,854
--	63,336,035	65.1	13,416,281	13.8	20,573,149	21.1	97,325,465
At merchant plants	11,208,384	56.7	4,443,471	22.5	4,131,145	20.8	19,783,000
At furnace plants	52,127,651	67.2	8,972,810	11.6	16,442,004	21.2	77,542,465

1/ Low-volatile - dry V. M. 22 percent or less and more than 14 percent; medium-volatile - dry V. M. 31 percent or less and more than 22 percent; high-volatile - dry V. M. more than 31 percent. 2/ Less than 0.05 percent.

TABLE 19.- OVENS COMPLETED AND ABANDONED IN THE UNITED STATES IN 1947 AND TOTAL NUMBER IN EXISTENCE AT END OF YEAR, BY STATES

State	Plants in existence Dec. 31	Ovens						
		In existence Dec. 31		New		Abandoned during year	Under construction Dec. 31	
		Number	Annual coke capacity (net tons)	Number	Annual coke capacity (net tons)		Number	Annual coke capacity (net tons)
Oven coke:								
Alabama	7	1,313	6,663,000	63	443,500	240	....	....
California	1	90	340,000	.....	....	....	....	....
Colorado	1	262	972,300	74	327,000	....	....	....
Connecticut	1	70	(2)	.....	....	....	....	....
Illinois	8	856	3,845,300	.....	....	....	....	....
Indiana	5	1,863	9,341,800	.....	....	....	77	400,000
Kentucky	1	120	(2)	.....	....	....	....	....
Maryland	1	422	2,124,000	.....	....	....	61	396,000
Massachusetts	2	215	1,289,800	.....	....	....	....	....
Michigan	4	568	2,984,500	.....	....	....	....	....
Minnesota	3	196	989,000	.....	....	....	....	....
Missouri	1	64	(2)	.....	....	....	....	....
New Jersey	2	304	1,427,000	.....	....	....	....	....
New York	8	1,142	6,249,400	.....	....	....	....	....
Ohio	15	2,309	11,014,200	210	954,700	....	....	....
Pennsylvania	13	3,585	17,635,200	21	82,300	....	328	1,588,200
Rhode Island	1	65	(2)	.....	....	....	....	....
Tennessee	1	44	242,000	.....	....	....	....	....
Texas	2	125	713,000	.....	....	....	....	....
Utah	2	308	1,202,800	.....	....	....	....	....
West Virginia	5	612	3,170,000	106	630,000	....	106	574,400
Wisconsin	2	195	(2)	.....	....	....	....	....
Undistributed	....	....	2,345,800	.....	....	....	....	....
	86	14,728	72,549,100	2/474	2,437,500	240	572	2,958,600
At merchant plants	32	3,047	14,599,200	8	45,700	240	....	....
At furnace plants	54	11,681	57,949,900	466	2,391,800	....	572	2,958,600
Beehive coke:								
Colorado	....	....	....	.....	....	160	....	....
Kentucky	1	195	172,000	.....	....	....	....	....
Pennsylvania	63	11,305	7,668,300	761	524,700	3	....	....
Utah	1	297	147,000	.....	....	....	....	....
Virginia	5	750	376,200	.....	....	....	....	....
West Virginia	7	896	480,900	61	16,600	80	....	....
	77	13,443	8,844,400	3/ 822	541,300	243	....	....

1/ Included under "Undistributed." 2/ Does not include 45 ovens in New York nor 87 in Pennsylvania which were completely rebuilt in 1947. 3/ Old ovens rehabilitated.

TABLE 20.- COKE OVENS, BY KINDS, IN THE UNITED STATES, AT THE END OF 1947, BY STATES

State	Koppers	Koppers Becker	Semet Solvay	Wilputte	All others 1/	Total
Alabama	459	549	180	125	......	1,313
California	......	90	......	......	......	90
Colorado	116	146	......	......	......	262
Connecticut	......	70	......	......	......	70
Illinois	375	198	120	163	......	856
Indiana	406	812	161	484	......	1,863
Kentucky	......	......	120	......	......	120
Maryland	300	122	......	......	......	422
Massachusetts	......	160	......	55	......	215
Michigan	......	222	346	......	......	568
Minnesota	155	41	......	......	......	196
Missouri	56	......	......	......	8	64
New Jersey	165	139	......	......	......	304
New York	150	608	180	152	52	1,142
Ohio	1,238	456	293	322	......	2,309
Pennsylvania	1,550	1,695	88	132	120	3,585
Rhode Island	40	25	......	......	......	65
Tennessee	......	......	24	20	......	44
Texas	......	125	......	......	......	125
Utah	......	308	......	......	......	308
West Virginia	154	313	......	145	......	612
Wisconsin	100	15	80	......	......	195
	5,264	6,094	1,592	1,598	180	14,728
At merchant plants	741	1,113	722	337	60	2,973
At furnace plants	4,523	4,981	870	1,261	120	11,755

1/ Comprises 52 American Foundation, 120 Cambria, and 8 Piette.

TABLE 21. - COAL-CHEMICAL MATERIALS OBTAINED FROM COKE-OVEN OPERATIONS IN THE UNITED STATES IN 1947 1/
(Exclusive of screenings or breeze)

Product	Production	Sales			On hand December 31
		Quantity	Value		
			Total	Average	
Tar .... gallons ..	736,174,480	407,973,125	$30,981,953	$0.076	30,778,666
Tar derivatives:					
Creosote oil, distillate as such .... do ..	27,495,624	27,752,373	4,508,951	.162	414,860
Creosote oil, in coal-tar solution .. do ..	13,002,593	11,697,444	1,796,099	.154	587,154
Tar acid oil .... do ..	13,201,290	12,927,441	2,321,345	.180	662,162
Pitch of tar:					
Soft 2/ .... net tons ..	405,810	4,190	93,923	22.416	10,089
Hard 3/ .... do ..	251,636	....	....	......	121
Other tar derivatives 4/	....	....	2,828,831	......	....
Ammonia:					
Sulfate 5/ .... pounds ..	1,618,879,699	1,624,498,995	26,724,821	.016	57,435,750
Liquor (NH_3 content) .... do ..	51,435,793	47,238,610	1,471,300	.031	1,822,645
	....	....	28,196,121	......	....
Sulfate equivalent of all forms ...... do ..	1,824,622,871	1,813,453,435	....	......	64,726,330
NH_3 equivalent of all forms .... do ..	456,155,718	453,363,359	....	......	16,181,583
Gas:					
Used under boilers, etc. .... M cubic feet ..	6/971,262,280	37,957,353	4,477,300	.118	....
Used in steel or affiliated plants do ..		348,322,970	48,535,351	.139	....
Distributed through city mains .. do ..		167,865,453	54,029,125	.322	....
Sold for industrial use .... do ..		38,799,524	4,966,231	.128	....
	6/971,262,280	592,945,300	112,008,007	.189	....
Crude light oil .... gallons ..	7/254,978,463	15,147,476	1,681,043	.111	4,136,019
Light-oil derivatives:					
Benzol:					
Motor .... do ..	15,802,689	15,936,607	1,850,109	.116	609,923
All other grades .... do ..	145,057,916	141,092,678	23,112,327	.164	7,194,058
Toluol, crude and refined .... do ..	26,396,449	27,322,475	5,254,902	.192	1,172,651
Xylol, crude and refined .... do ..	7,130,332	7,099,796	1,516,333	.214	475,589
Solvent naphtha .... do ..	5,647,563	5,366,054	769,778	.143	406,022
Other light-oil products 8/ .... do ..	8,369,231	6,220,469	598,809	.906	428,467
	208,404,180	203,038,079	33,102,258	.163	10,286,710
Naphthalene, crude .... pounds ..	98,378,875	98,364,997	3,021,152	.031	2,340,219
Pyridine:					
Crude bases (dry basis) .... gallons ..	415,973	401,970	320,599	.798	82,347
Refined, or 2° .... pounds ..	1,028,597	1,000,399	477,449	.477	44,056
Sodium phenolate .... gallons ..	2,617,052	2,545,998	192,367	.076	199,365
Other coal-chemical materials 9/ ...... do ..	....	....	563,553	......	....
Value of all coal-chemical materials sold	....	....	222,093,651	......	....

1/ Include products of tar distillation conducted by coke-oven operators under same corporate name. 2/ Softening point less than 110°F. Includes some medium pitch of tar reported by two producers. 3/ Softening point over 160°F. 4/ Cresylic acid, cresols, crude enthracene, fuel oil, phenol, pitch coke, road tar, tar paint, and topped tar. 5/ Does not include production of 22,139,230 pounds nor sales of 21,838,703 pounds valued at $570,182 from purchased synthetic ammonia. 6/ Includes gas used for heating ovens and gas wasted. 7/ Refined on premises to make derived products shown: 241,379,524 gallons. 8/ Includes benzol still residue, dicyclopentadiene, carbon disulfite, and vented vapors. 9/ Ammonium thiocyanate, cyanogen sludge, crude phenol, picolines, secondary oil, sodium prussiate, and sulfur.

TABLE 22. - VALUE OF COAL-CHEMICAL MATERIALS AND OF COKE, INCLUDING BREEZE, PER TON OF COKE PRODUCED IN THE UNITED STATES, 1937 AND 1944-47

Product	1937	1944	1945	1946	1947
Ammonia and its compounds	$0.326	$0.324	$0.356	$0.361	$0.423
Light oil and its derivatives (including naphthalene) ..	.435	.552	.503	.467	.566
Surplus gas sold or used	1.483	1.403	1.413	1.542	1.678
Tar sold	.375	.327	.352	.395	.464
Miscellaneous products	.066	.167	.148	.154	.196
	2.685	2.773	2.772	2.919	3.327
Tar used, not sold	.127	.131	.095	.071	.141
Breeze produced	.162	.198	.202	.217	.242
	2.974	3.102	3.069	3.207	3.710
Value of coke produced	5.026	7.140	7.572	8.345	10.652
Total value of coke and coal-chemical materials ...	8.000	10.242	10.641	11.552	14.362

TABLE 23. - COKE-OVEN GAS PRODUCED AND SOLD IN THE UNITED STATES IN 1947, BY STATES, IN THOUSANDS OF CUBIC FEET

State	Active plants	Produced	Used in heating ovens	Surplus sold or used			Wasted
				Quantity	Value		
					Total	Average	
Alabama	7	84,331,666	39,325,816	43,311,093	$4,382,761	$0.101	1,694,757
California	1	6,055,088	505,658	5,322,238	(1)	(1)	227,192
Colorado	1	14,229,601	7,549,583	6,566,218	(1)	(1)	113,800
Illinois	8	52,641,285	17,518,502	34,357,275	5,044,230	.147	765,508
Indiana	5	116,701,626	51,358,314	63,130,679	12,394,999	.196	2,212,633
Maryland	1	27,292,128	9,391,101	16,880,532	(1)	(1)	1,020,495
Massachusetts	2	17,382,821	3,496,730	13,852,461	(1)	(1)	33,630
Michigan	4	37,956,354	6,278,138	31,596,951	4,840,455	.153	81,265
Minnesota	3	12,906,231	5,581,667	7,279,468	2,247,952	.309	45,096
New Jersey	2	21,676,626	5,890,339	15,786,287	(1)	(1)	....
New York	8	86,221,348	24,277,057	61,015,919	19,439,006	.319	928,372
Ohio	15	141,491,374	63,798,558	76,282,057	11,305,431	.148	1,410,759
Pennsylvania	13	248,333,485	103,773,037	143,638,429	22,644,786	.158	922,019
Tennessee	1	3,172,540	1,363,397	1,800,823	(1)	(1)	8,320
Texas	2	4,095,232	1,523,633	1,501,145	(1)	(1)	1,070,454
Utah	2	18,763,734	4,670,186	13,468,369	(1)	(1)	625,179
West Virginia	5	44,739,978	14,326,965	29,873,050	3,994,346	.134	539,963
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	6	33,271,163	5,629,119	27,282,306	7,767,571	.285	359,738
Undistributed	....	....	....	....	17,946,470	.239	....
Total 1947	86	971,262,280	366,257,800	592,945,300	112,008,007	.189	12,059,180
At merchant plants	32	199,401,275	48,440,115	148,477,515	46,850,004	.316	2,483,645
At furnace plants	54	771,861,005	317,817,685	444,467,785	65,158,003	.147	9,575,535
Total 1946	85	783,637,016	293,685,525	480,489,586	83,184,679	.173	9,461,905

1/ Included under "Undistributed."

TABLE 24. - COKE-OVEN GAS AND OTHER KINDS OF GAS USED IN HEATING OVENS IN 1947, BY STATES, IN THOUSANDS OF CUBIC FEET 1/

State	Coke-oven gas	Producer gas	Blue water gas	Blast furnace gas	Other gases	Total coke-oven gas equivalent
Alabama	39,325,816	....	....	....	2/ 246,058	39,571,874
California	505,658	....	....	1,900,368	....	2,406,026
Colorado	7,549,583	....	....	....	....	7,549,583
Illinois	17,518,502	249,223	....	4,286,960	3/ 2,689,183	24,743,868
Indiana	51,358,314	1,188,704	515,747	....	3/ 87,512	53,150,277
Maryland	9,391,101	....	....	2,413,729	....	11,804,830
Massachusetts	3,496,730	3,800,461	....	....	....	7,297,191
Michigan	6,278,138	....	....	9,026,581	....	15,304,719
Minnesota	5,581,667	126,090	45,639	....	4/152,012	5,905,408
New Jersey	5,890,339	3,109,032	....	....	....	8,999,371
New York	24,277,057	11,002,609	1,144,230	685,362	....	37,109,258
Ohio	63,798,558	....	....	14,939,924	....	78,738,482
Pennsylvania	103,773,037	2,022,347	54,519	2,177,236	5/ 654,276	108,681,415
Tennessee	1,363,397	....	....	....	....	1,363,397
Texas	1,523,633	....	....	....	3/ 6,272	1,529,905
Utah	4,670,186	....	....	3,061,533	....	7,731,719
West Virginia	14,326,965	....	....	3,039,086	6/ 830,500	18,196,551
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin ...	5,629,119	6,154,054	....	....	7/ 2,007,899	13,791,072
	366,257,800	27,652,520	1,760,135	41,530,779	6,673,712	443,874,946
At merchant plants	48,440,115	27,261,276	1,659,977	....	6,624,378	83,985,746
At furnace plants	317,817,685	391,244	100,158	41,530,779	49,334	359,889,200

1/ Corrected to 550 B.t.u. per cubic foot. 2/ Natural and oil gas. 3/ Natural gas. 4/ Butane air gas. 5/Oil gas.

TABLE 25.--DISPOSAL OF SURPLUS COKE-OVEN GAS IN THE UNITED STATES IN 1947, BY STATES, IN THOUSANDS OF CUBIC FEET

State	Used by producer -					
	Used under boilers			In steel or other affiliated plant		
	Quantity	Value		Quantity	Value	
		Total	Average		Total	Average
Alabama	6,662,610	$480,054	$0.072	27,347,345	$2,900,023	$0.106
California	....	....	.....	5,322,238	(1)	(1)
Colorado	....	....	......	6,566,218	(1)	(1)
Illinois	6,505,680	785,791	.121	6,734,448	(1)	(1)
Indiana	4,276,799	(1)	(1)	48,459,914	7,245,704	.150
Maryland	....	....	.....	10,631,382	(1)	(1)
Massachusetts	4,620	(1)	(1)	....	....	.....
Michigan	4,962,228	(1)	(1)	24,943,654	3,613,483	.145
Minnesota	80,569	5,718	.071	2,144,839	(1)	(1)
New Jersey	....	....	.....	483	(1)	(1)
New York	1,743,001	213,994	.123	16,992,115	2,728,721	.161
Ohio	4,936,281	700,025	.142	54,623,397	7,974,119	.146
Pennsylvania	4,284,852	(1)	(1)	108,987,127	14,187,500	.130
Tennessee	199,199	(1)	(1)	....	....	.....
Texas	1,189,168	(1)	(1)	311,977	(1)	(1)
Utah	1,080,514	(1)	(1)	11,433,433	(1)	(1)
West Virginia	865,588	(1)	(1)	23,824,400	3,406,900	.143
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	1,166,244	(1)	(1)	....	....	.....
Undistributed	....	2,291,718	.127	....	6,478,901	.150
Total 1947	37,957,353	4,477,300	.118	348,322,970	48,535,351	.139
At merchant plants	7,521,967	797,611	.106	6,735,333	925,872	.137
At furnace plants	30,435,386	3,679,689	.121	341,587,637	47,609,479	.139
Total 1946	29,473,813	3,307,201	.112	265,545,711	31,172,118	.117

State	Sold					
	Distributed through city mains			For industrial purposes		
	Quantity	Value		Quantity	Value	
		Total	Average		Total	Average
Alabama	4,332,751	(1)	(1)	4,968,387	(1)	(1)
California	....	....	.....	....	....	.....
Colorado	....	....	.....	....	....	.....
Illinois	20,245,939	$2,952,769	$0.146	871,208	(1)	(1)
Indiana	8,635,127	4,056,038	.470	1,758,839	(1)	(1)
Maryland	6,249,150	(1)	(1)	....	....	.....
Massachusetts......................	13,732,328	(1)	(1)	115,513	(1)	(1)
Michigan	....	....	.....	1,691,069	(1)	(1)
Minnesota..........................	5,054,060	(1)	(1)	....	....	.....
New Jersey	15,785,804	(1)	(1)	....	....	.....
New York	40,670,422	16,094,627	.396	1,610,381	$401,664	$0.249
Ohio	4,782,883	1,151,660	.241	11,939,496	1,479,627	.124
Pennsylvania	23,530,020	7,297,186	.310	6,836,430	(1)	(1)
Tennessee	1,601,624	(1)	(1)	....	....	.....
Texas	....	....	.....	....	....	.....
Utah	833,193	(1)	(1)	121,229	(1)	(1)
West Virginia	....	....	.....	5,183,062	(1)	(1)
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	22,412,152	7,292,238	.325	3,703,910	(1)	(1)
Undistributed	....	15,184,607	.319	....	3,084,940	.122
Total 1947	167,865,453	54,029,125	.332	38,799,524	4,966,231	.128
At merchant plants	113,512,038	42,273,402	.372	20,708,177	2,853,119	.138
At furnace plants	54,353,415	11,755,723	.216	18,091,347	2,113,112	.117
Total 1946	157,234,511	44,928,697	.286	28,235,551	3,776,663	.134

1/ Included under "Undistributed."

TABLE 26. - COKE-OVEN TAR PRODUCED, USED BY PRODUCER, AND SOLD IN THE UNITED STATES IN 1947, BY STATES, IN GALLONS

State	Produced		Used by producer -			
	Total	Per ton of coal coked	For refining or topping	As fuel under boilers	In open hearth of affiliated plants	Otherwise
Alabama	64,866,672	7.83	1,863,666	693,593	28,716,874	173,949
California	5,449,208	10.15	5,278,717	....	....	....
Colorado	12,105,000	9.71	11,015,937	....	1,172,258	....
Illinois	35,153,526	6.56	....	4,950	....	....
Indiana	67,206,555	5.63	16,707,652	....	8,542,498	1,329,139
Maryland	19,238,266	7.00	....	....	329,110	....
Massachusetts	12,309,554	7.46	....	....	....	....
Michigan	27,049,788	6.94	....	....	6,091,303	10
Minnesota	7,465,747	5.96	....	....	1,753,525	....
New Jersey	15,183,457	7.64	....	....	....	....
New York	62,947,806	7.80	16,230,543	....	....	21,011
Ohio	97,744,430	6.88	2,771,460	167,370	15,640,383	436,790
Pennsylvania	220,727,746	9.20	146,605,677	....	40,837,939	268,025
Tennessee	2,492,790	7.65	....	....	....	....
Texas	2,426,061	6.52	....	....	....	....
Utah	18,617,720	11.54	....	....	13,261,505	....
West Virginia	42,580,793	10.55	....	....	4,336,795	....
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	22,609,361	7.31	....	....	....	605
Undistributed	....	.....	....	....	....	....
Total 1947	736,174,480	7.78	200,473,652	865,913	120,682,190	2,229,529
At merchant plants	149,768,406	7.77	1,863,666	....	....	7,177
At furnace plants	586,406,074	7.79	198,609,986	865,913	120,682,190	2,222,352
Total 1946	596,868,745	7.82	155,061,221	1,055,469	64,697,730	2,780,646

State	Sold -					On hand Dec. 31
	For use as fuel 1/	For refining into tar products	Total			
			Quantity	Value		
				Total	Average	
Alabama	....	32,203,562	32,203,562	$2,485,467	$0.077	3,758,200
California	....	....	....	....	.....	286,154
Colorado	....	10,056	10,056	(2)	(2)	242,987
Illinois	7,601,271	27,077,475	34,678,746	2,651,650	.076	1,511,857
Indiana	5,324,533	35,098,170	40,422,703	3,138,166	.078	3,720,642
Maryland	....	18,300,668	18,300,668	(2)	(2)	2,049,508
Massachusetts	494,733	11,782,390	12,277,123	(2)	(2)	123,909
Michigan	....	20,086,839	20,086,839	1,515,447	.075	1,397,524
Minnesota	....	5,686,217	5,686,217	412,112	.072	779,917
New Jersey	....	15,129,908	15,129,908	(2)	(2)	660,549
New York	2,149,651	45,080,131	47,229,782	3,434,560	.073	1,635,635
Ohio	3,493,464	75,006,780	78,500,244	6,364,500	.081	3,834,712
Pennsylvania	283,487	32,406,835	32,690,322	2,339,942	.072	7,912,135
Tennessee	....	2,479,530	2,479,530	(2)	(2)	34,521
Texas	....	2,150,681	2,150,681	(2)	(2)	275,380
Utah	30	5,447,402	5,447,432	(2)	(2)	876,747
West Virginia	12,728,611	25,372,113	38,100,724	3,344,054	.088	723,539
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	....	22,578,588	22,578,588	1,491,386	.066	954,750
Undistributed	....	....		3,804,669	.068	....
Total 1947	32,075,780	375,897,345	407,973,125	30,981,953	.076	30,778,666
At merchant plants	494,733	146,646,790	147,141,523	9,967,993	.068	5,033,531
At furnace plants	31,581,047	229,250,555	260,831,602	21,013,960	.081	25,745,135
Total 1946	10,961,798	367,036,784	377,998,582	21,284,137	.056	26,728,081

1/ Comprises 19,843,352 gallons sold to affiliated plants and 12,232,428 gallons to other purchasers. 2/ Included under "Undistributed."

TABLE 27. - COKE-OVEN AMMONIA PRODUCED AND SOLD IN THE UNITED STATES IN 1947, BY STATES, IN POUNDS

State	Active plants	Sulfate equivalent of all forms		Produced as -	
		Quantity	Per ton of coal coked	Sulfate	Liquor (NH_3 content)
Alabama	7	185,824,523	22.44	180,020,039	1,451,121
California	1	14,916,095	27.79	14,916,095	....
Colorado	1	25,874,939	20.75	25,874,939	....
Illinois	7	90,797,115	18.90	90,797,115	....
Indiana	5	195,302,814	16.37	170,154,294	6,287,130
Maryland	1	55,887,813	20.34	55,887,813	....
Massachusetts	2	27,668,868	16.76	27,074,800	148,517
Michigan	4	78,715,613	20.20	27,456,637	12,814,744
Minnesota	3	18,812,512	15.02	18,812,512	....
New Jersey	2	36,239,770	18.23	36,239,770	....
New York	8	145,559,093	18.04	117,135,565	7,105,882
Ohio	15	257,859,336	18.15	204,404,492	13,363,711
Pennsylvania	13	510,491,251	21.29	508,376,895	528,589
Tennessee	1	7,339,880	22.52	7,339,880	....
Texas	2	8,108,680	21.78	8,108,680	....
Utah	2	42,286,510	26.21	42,286,510	....
West Virginia	3	64,153,053	22.58	64,153,053	....
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	5	58,785,006	19.27	19,840,610	9,736,099
Undistributed	....	....	.....	....	....
Total 1947	82	1,824,622,871	19.66	1,618,879,699	51,435,793
At merchant plants	29	347,938,479	19.32	211,348,643	34,147,459
At furnace plants	53	1,476,684,392	19.74	1,407,531,056	17,288,334
Total 1946	81	1,487,434,225	19.79	1,287,504,417	49,982,452

State	Sold as -				On hand Dec. 31	
	Sulfate		Liquor (NH_3 content)		Sulfate	Liquor (NH_3 content)
	Quantity	Value	Quantity	Value		
Alabama	176,337,562	$2,910,784	1,500,464	(1)	4,975,056	28,628
California	14,970,260	(1)	....	....	97,800	....
Colorado	28,126,260	(1)	....	....	552,840	....
Illinois	89,969,885	1,415,728	....	....	3,798,604	....
Indiana	170,999,403	2,650,306	5,827,463	$170,106	8,852,967	583,178
Maryland	57,631,589	(1)	....	....	260,041	....
Massachusetts	26,783,780	(1)	154,217	(1)	882,200	10,090
Michigan	28,923,481	(1)	10,895,066	(1)	57,556	284,819
Minnesota	20,483,750	328,325	....	....	909,258	....
New Jersey	35,612,353	(1)	....	....	1,529,657	....
New York	113,579,730	1,931,777	6,881,458	220,042	6,806,698	164,284
Ohio	203,753,192	3,258,170	11,889,304	378,743	4,671,160	340,418
Pennsylvania	513,428,537	8,337,157	524,327	(1)	21,607,307	38,364
Tennessee	7,308,015	(1)	....	....	159,737	....
Texas	7,884,520	(1)	....	....	224,160	....
Utah	42,632,843	(1)	....	....	912,220	....
West Virginia	65,506,895	1,147,201	....	....	802,261	....
Connecticut, Kentucky, Missouri, Rhode Island, and Wisconsin	20,566,940	338,513	9,566,311	287,931	336,228	372,864
Undistributed	....	4,406,860	....	414,478	....	....
Total 1947	1,624,498,995	26,724,821	47,238,610	1,471,300	57,435,750	1,822,645
At merchant plants	210,146,963	3,529,315	36,941,479	1,145,810	7,477,828	1,078,877
At furnace plants	1,414,352,032	23,195,506	10,297,131	325,490	49,957,922	743,768
Total 1946	1,284,471,366	18,024,763	47,042,597	1,417,296	66,822,811	1,289,128

1/ Included under "Undistributed."

TABLE 28. - COKE-OVEN CRUDE LIGHT OIL PRODUCED IN THE UNITED STATES AND DERIVED PRODUCTS OBTAINED AND SOLD IN 1947, BY STATES, IN GALLONS

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State	Active plants	Produced		Refined on premises 1/	Derived products			On hand Dec. 31
		Total	Per ton of coal coked		Produced	Sold 2/		
						Quantity	Value	
Alabama	7	22,852,138	2.76	22,002,834	19,175,866	18,432,998	$2,964,552	280,632
California	1	1,996,368	3.72	1,996,732	1,736,567	1,578,531	(3)	14,209
Colorado	1	3,833,046	3.07	3,854,950	3,728,676	3,523,546	(3)	29,396
Illinois	7	13,844,740	2.64	10,454,988	8,657,258	9,008,717	1,528,641	200,494
Indiana	5	27,581,793	2.31	28,730,131	24,713,289	24,347,828	3,945,359	332,185
Maryland	1	11,246,439	4.09	11,270,869	9,715,192	9,666,949	(3)	59,262
Michigan	4	10,404,830	2.67	5,226,153	4,498,259	4,435,636	(3)	193,863
New York	8	17,473,659	2.17	26,790,827	23,667,837	22,888,868	3,782,425	266,681
Ohio	15	38,668,467	2.72	34,358,186	26,883,937	27,082,195	4,463,727	448,152
Pennsylvania	13	74,601,390	3.11	71,763,817	64,307,993	63,386,900	10,191,079	1,839,140
Tennessee	1	780,828	2.40	777,070	682,946	705,492	(3)	5,222
Texas	2	934,614	2.51	909,324	757,777	645,819	(3)	25,290
Utah	2	6,261,191	3.88	6,278,459	5,211,492	4,965,828	(3)	40,094
West Virginia	5	13,250,134	3.28	10,952,645	9,395,034	7,095,258	1,246,196	92,479
Connecticut, Kentucky, Massachusetts, Missouri, New Jersey, and Wisconsin	7	11,248,826	1.79	6,012,539	5,272,057	5,273,514	889,521	308,920
Undistributed	....	....	.....	....	....	....	4,090,758	....
Total 1947	79	254,978,463	2.75	241,379,524	208,404,180	203,038,079	33,102,258	4,136,019
At merchant plants	27	39,261,177	2.15	33,886,739	30,059,188	27,826,122	4,486,962	1,080,517
At furnace plants	52	215,717,286	2.90	207,492,785	178,344,992	175,211,957	28,615,296	3,055,502
Total 1946	77	206,914,333	2.77	198,593,963	171,607,226	171,597,004	22,523,610	3,784,767

1/ Comprises 236,688,759 gallons of crude light oil from own production and 4,690,765 gallons purchased from other coke-oven plants. 2/ Excludes 15,147,476 gallons of crude light oil valued at $1,681,043 sold as such. 3/ Included under "Undistributed."

TABLE 29. - TREND IN YIELDS OF PRODUCTS OBTAINED FROM REFINING CRUDE LIGHT OIL AT OVEN-COKE PLANTS, 1937 AND 1939-47, IN PERCENT

Year	Benzol		Toluol crude and refined	Xylol	Solvent naphtha	Other light oil products	Year	Benzol		Toluol crude and refined	Xylol	Solvent naphtha	Other light oil products
	Motor	All other grades						Motor	All other grades				
1937	52.5	11.9	11.5	2.5	3.1	4.5	1943	8.6	53.9	13.1	3.6	2.1	3.6
1939	48.6	15.4	12.1	2.5	2.9	3.8	1944	7.1	56.6	12.9	3.3	2.1	3.5
1940	48.8	15.4	12.7	2.7	2.5	3.6	1945	12.3	53.9	11.5	3.2	2.0	3.3
1941	47.2	16.8	13.0	3.4	2.3	3.6	1946	13.8	55.3	8.3	3.0	2.2	3.8
1942	26.8	35.3	13.4	3.9	2.2	3.8	1947	6.5	60.1	10.9	3.0	2.3	3.5

TABLE 30. - CRUDE NAPHTHALENE PRODUCED AND SOLD BY COKE-PLANT OPERATORS IN THE UNITED STATES, 1937 AND 1943-47

Year	Produced (pounds)	Sold			Receipts per ton of coke (cents)
		Pounds	Value		
			Total	Average per pound (cents)	
1937	60,797,108	60,315,581	$1,182,992	$0.020	$0.024
1943	98,096,899	98,031,058	2,088,829	.021	.033
1944	103,041,023	103,839,789	2,094,596	.020	.031
1945	87,677,299	86,936,517	1,806,967	.021	.029
1946	71,605,138	71,769,750	1,602,739	.022	.030
1947	98,378,875	98,364,997	3,021,152	.031	.045

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MINERAL INDUSTRY SURVEYS
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
J. A. KRUG, Secretary JAMES BOYD, Director

FOR RELEASE JULY 30, 1948

Mineral Market Reports
M.M.S. No. 1632

METAL MINING IN IDAHO, 1947 - FINAL ANNUAL FIGURES

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

Idaho's silver and lead output, which has been dropping for several years, made a remarkable recovery in 1947, according to the Salt Lake Office of the Bureau of Mines, United States Department of the Interior. In 1947 the silver output increased to 10,345,779 fine ounces, a 59-percent gain over 1946, and lead to 157,888,000 pounds, a 32-percent gain. Marked increases in the output of each of the other three metals--gold (51 percent), copper (58 percent), and zinc (16 percent)--resulted in one of the highest production years in any peacetime year, and the total value of the five metals rose to $54,167,842. Of the total value in 1947, lead contributed 42 percent, zinc 35, silver 17, gold 4, and copper 1 percent. In 1947 the State remained the largest producer of silver and zinc in the United States and the second largest producer of lead (exceeded only by Missouri).

No labor strikes plagued the mining industry in the State in 1947, and the higher average prices for silver, copper, and lead and an improvement in the labor supply during the year caused greater activity at the large producing silver and zinc-lead-silver mines in the Coeur d'Alene region, the principal producing area in Idaho. Nearly 50 percent of the State gold production in 1947 came from a lode mine in the Yellow Pine district in Valley County; the remainder came largely from dredging operations in the Boise Basin, Gibbonsville, Yankee Fork, Kirtley Creek, Elk City, Ten Mile (Golden), and Hoodoo districts, and from a lode mine in the Middle Boise (Atlanta) district. The output of gold from lode mines was 45,206 ounces in 1947 compared with 22,852 ounces in 1946, and that from placers 19,776 ounces compared with 20,123 ounces.

The value of the metal production herein reported has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses; Gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.210 per pound ($0.162); lead, $0.144 per pound ($0.109); zinc, $0.115 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired June 30, 1947.

Of the 3,717,697 tons of ore produced in 1947 in Idaho, 3,591,511 tons (97 percent) were treated at concentration plants, 95,906 tons (more than 2 percent) were shipped crude to smelters, 27,780 tons (nearly 1 percent) were treated at amalgamation mills, and 2,500 tons were treated at one cyanide plant. Most of the ore (73 percent) produced in 1947 was zinc-lead ore, which came principally from the Coeur d'Alene region; 17 percent was gold ore, which came largely from a mine in the Yellow Pine district in Valley County; and the remainder was mostly lead ore and silver ore, which came principally from the Coeur d'Alene region.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, under the supervision of Charles W. Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Mine production of gold, silver, copper, lead, and zinc in Idaho, 1946-47, in terms of recovered metals

Metals	1946		1947	
	Quantity	Value	Quantity	Value
Gold, fine ounces.....	42,975	$1,504,125	64,982	$2,274,370
Silver, fine ounces...	6,491,104	5,244,812	10,345,779	9,362,930
Copper, pounds........	2,076,000	336,312	3,280,000	688,800
Lead, pounds..........	119,974,000	13,077,166	157,888,000	22,735,872
Zinc, pounds..........	143,014,000	17,447,708	166,138,000	19,105,870
Total value...........	-----------	37,610,123	-----------	54,167,842

Mine production of gold, silver, copper, lead, and zinc in Idaho in 1947, by months, in terms of recovered metals

	Gold (ounces)	Silver (ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January...........	2,910	751,000	232,000	12,700,000	13,500,000
February..........	2,650	725,000	250,000	11,670,000	11,800,000
March.............	4,170	795,000	264,000	12,500,000	12,700,000
April.............	5,740	969,000	296,000	12,600,000	14,200,000
May...............	6,070	757,000	256,000	12,700,000	15,750,000
June..............	6,825	768,000	258,000	13,450,000	16,370,000
July..............	7,110	766,000	288,000	13,000,000	13,890,000
August............	6,560	933,000	274,000	13,700,000	13,800,000
September.........	5,910	840,000	254,000	12,840,000	11,938,000
October...........	6,400	1,191,000	326,000	14,500,000	13,730,000
November..........	5,600	965,000	286,000	14,528,000	14,160,000
December..........	5,037	885,779	296,000	13,700,000	14,300,000
Total, 1947...	64,982	10,345,779	3,280,000	157,888,000	166,138,000

Ore sold or treated in Idaho in 1947, with content in terms of recovered metals.

Source	Mines producing	Ore (short tons)	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
Dry and siliceous gold ore	36	618,877	39,562	299,542	1,761	3,550	--------
Dry and Siliceous gold-silver ore	7	629	92	3,504	3,307	4,988	--------
Dry and siliceous silver ore	17	146,259	117	5,121,229	1,441,487	4,697,849	394,670
	60	765,765	39,771	5,424,275	1,446,555	4,706,387	394,670
Copper ore	8	3,303	201	4,452	256,146	300	----------
Lead ore	59	165,218	295	637,415	102,946	16,073,661	1,031,676
Lead-copper ore	1	27	1	6,083	3,000	10,475	----------
Zinc ore	4	1/ 67,133	9	25,441	4,112	2,398,190	12,193,500
Zinc-lead ore	71	2,716,251	4,929	4,244,008	1,467,241	134,698,987	152,518,154
Total, lode mines	2/ 183	1/3,717,697	45,206	10,341,674	3,280,000	157,888,000	166,138,000
Total, placers	99	----------	19,776	4,105	----------	----------	----------
Total, 1947	282	1/3,717,697	64,982	10,345,779	3,280,000	157,888,000	166,138,000
1946	210	3/2,882,187	42,975	6,491,104	2,076,000	119,974,000	143,014,000

1/ Includes 65,409 tons of old lead-smelter slag.
2/ A mine producing more than 1 class of ore is counted but once in arriving at total for all classes.
3/ Includes 92,072 tons of old lead-smelter slag.

In 1947, the Coeur d'Alene region, Shoshone County, produced 89 percent of the State silver output, 80 percent of the copper, more than 92 percent of the lead, and 95 percent of the zinc. Thirty-three mills, with a total capacity of 13,075 tons of ore a day, operated in the region in 1947. The following table gives the mine production of gold, silver, copper, lead, and zinc in the Coeur d'Alene region, Shoshone County, in 1946 and 1947, and total 1884-1947, in terms of recovered metals.

Mine production of gold, silver, copper, lead, and zinc in the Coeur d' Alene region, Shoshone County, 1946-47, and total 1884-1947, in terms of recovered metals.

	Mines producing		Ore	Gold (Lode and placer)	Silver (Lode and placer)	Copper	Lead	Zinc	Total Value
	Lode	Placer							
			Short tons	Fine ounces	Fine ounces	Pounds	Pounds	Pounds	
1946............	56	1	2,559,636	1,758	5,655,672	1,619,000	113,096,000	134,858,000	$33,673,731
1947............	61	4	2,957,143	2,808	9,234,906	2,624,000	146,120,000	158,502,000	48,275,920
Total, 1884-1947..	---	----	(1)	395,874	441,522,330	2/ 66,676	2/5,605,127	2/1,276,117	1,171,201,302

1/ Figure is not available. 2/ Short tons.

Other important producing districts were the Warm Springs in Blaine County with a production of 2,553 ounces of gold, 427,242 ounces of silver, 260,400 pounds of copper, 3,757,500 pounds of lead, and 5,582,000 pounds of zinc; the Bayhorse in Custer County with a production of 143 ounces of gold, 204,264 ounces of silver, 37,700 pounds of copper, 4,077,000 pounds of lead, and 763,600 pounds of zinc; and the Alder Creek in Custer County with a production of 260 ounces of gold, 58,990 ounces of silver, 154,800 pounds of copper, 2,205,500 pounds of lead, and 565,000 pounds of zinc.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary   JAMES BOYD, Director

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FOR RELEASE JULY 29, 1948

MINERAL MARKET REPORTS
M.M.S. No. 1633

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AUG 2 1948
UNIVERSITY OF ILLINOIS

MANGANESE IN 1947

FINAL ANNUAL FIGURES-PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

Manganese ore was generally available in adequate quantities during 1947. A considerable hesitancy on the part of buyers in signing new purchase contracts for manganese ore caused sellers of foreign ore to reduce prices substantially during the course of the year. Quoted prices for standard (48 percent Mn) ore, which approximated 70 cents per unit, Eastern ports, at the beginning of the year, were quoted as low as 65 cents in the closing months. Nevertheless, industry stocks which were low at the beginning of the year increased only slightly and actually decreased about 20 percent relative to the consumption.

The import duty on manganese ore continued at 1/2 cent per pound of contained manganese during 1947 (a rate which had been in effect since January 1, 1936 under the Brazilian Trade Agreement) but was reduced in October 1947 to 1/4 cent per pound effective January 1, 1948, as a result of the Geneva conference. Stocks of ore in bonded warehouses at the end of 1947 totaled 455,425 short tons, an increase of 28 percent over the previous year. Thus approximately 100,000 tons of manganese ore received in 1947 were to be withdrawn for consumption at the lower duty.

Imports of manganese ore in 1947 decreased 12 percent from 1946 and totaled 1,541,818 short tons. Notable among countries that decreased shipments to the United States were Chile, Cuba, Gold Coast and Union of South Africa. The first country shipped nearly 150,000 tons of ore in 1946, mainly from stockpiles which were built up during the war, when shipping was not available; stocks were largely depleted in 1947 and much of the shipments were from current production. Cuba shipped, in 1947, only about one-third the 1946 quantity due to reserves having been largely exhausted. Most Gold Coast shipments went to supply increased requirements of the United Kingdom and shipments to the United States were only about half of the 1946 total. Shortages of shipping equipment in the Union of South Africa resulted in 12 percent less ore being shipped to the United States in 1947 than in 1946. These deficiencies resulted in an increased reliance on ore from the Soviet Union and India during 1947. Improvements in rail facilities in India permitted a 13-percent increase in shipments to the United States, and offers for the sale of manganese ore from the U. S. S. R. resulted in a 37-percent increase in receipts of Russian material. The Soviet Union supplied 21 percent of United States receipts in 1947.

Prepared by Norwood B. Melcher, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Salient statistics of the manganese industry in the United States,
1943-47 in short tons

	1943	1944	1945	1946	1947
Manganese ore:					
Total mine shipments containing 35 percent or more Mn	205,173	247,616	182,337	143,635	131,627
Mine shipments of metallurgical ore	195,096	241,170	174,295	134,381	125,428
Mine shipments of battery ore	9,973	6,224	8,042	1/ 8,295	6,189
General imports	1,429,599	1,157,932	1,461,945	1,749,223	1,541,818
Consumption	1,588,323	1,593,098	1,485,859	1,136,687	1,418,261
Ferromanganese:					
Domestic production	702,484	702,632	619,760	491,973	614,626
Imports	2,302	4,199	35,521	32,130	81,307
Exports	12,510	600	836	2,951	20,168
Consumption	736,288	730,491	641,622	501,260	732,619
Spiegeleisen:					
Domestic production	149,036	165,530	139,039	111,696	134,328
Imports	3,254	3,761	3,146	360	---
Exports	314	202	2,393	7,513	305
Consumption	176,421	160,497	148,087	112,700	120,019

1/ Includes small quantity of miscellaneous ore.

Manganese and manganiferous ores shipped from mines in the United States in 1947, by States

	Metallurgical				Battery				Miscellaneous				Total			
		Short tons				Short tons				Short tons				Short tons		
	Shippers	Gross weight	Manganese content	Value	Shippers	Gross weight	Manganese content	Value	Shippers	Gross weight	Manganese content	Value	Shippers	Gross weight	Manganese content	Value
Manganese ore: 1/																
Arizona	1	133	49	(2)	---	---	---	---	---	---	---	---	1	133	49	(2)
Arkansas	2	841	410	(2)	---	---	---	---	---	---	---	---	2	841	410	(2)
Montana	1	123,490	73,618	(2)	2	6,189	2,611	(2)	1	10	4	(2)	3 3/	129,689	76,233	$4,153,045
New Mexico	1	858	377	(2)	---	---	---	---	---	---	---	---	1	858	377	(2)
Nevada	1	67	28	(2)	---	---	---	---	---	---	---	---	1	67	28	(2)
Tennessee	1	39	22	(2)	---	---	---	---	---	---	---	---	1	39	22	(2)
	7	125,428	74,504	(2)	2	6,189	2,611	(2)	1	10	4	(2)	9 3/	131,627	77,119	4,200,947
Ferruginous Manganese ore: 4/																
Arizona	1	62	18	(2)	---	---	---	---	---	---	---	---	1	62	18	(2)
Arkansas	1	2,094	628	(2)	---	---	---	---	---	---	---	---	1	2,094	628	(2)
Colorado	1	37	9	(2)	---	---	---	---	---	---	---	---	1	37	9	(2)
Montana	1	3,671	959	(2)	---	---	---	---	---	---	---	---	1	3,671	959	(2)
New Mexico	1	97,007	11,641	(2)	---	---	---	---	---	---	---	---	1	97,007	11,641	(2)
Nevada	3	13,117	3,373	(2)	---	---	---	---	---	---	---	---	3	13,117	3,373	(2)
Utah	4	7,198	1,674	(2)	---	---	---	---	---	---	---	---	4	7,198	1,674	(2)
Virginia	1	5,376	1,216	(2)	---	---	---	---	1	832	188	(2)	1 5/	6,208	1,404	(2)
	13	128,562	19,518	(2)	---	---	---	---	1	832	188	(2)	13 5/	129,394	19,706	707,809
Manganiferous iron ore: 6/																
Minnesota	3	1,041,761	62,525	$2,739,340	---	---	---	---	---	---	---	---	3 5/	1,041,761	62,525	2,739,340

1/ Containing 35 percent or more manganese (natural).
2/ Value included in total.
3/ One company in Montana shipped metallurgical and miscellaneous grades.
4/ Containing 10 to 35 percent manganese (natural).
5/ One company in Virginia shipped metallurgical and miscellaneous grades.
6/ Containing 5 to 10 percent manganese (natural).

IMPORTS OF MANGANESE ORE

Imports of all grades of manganese ore are shown by countries in the following table. Included in these data are imports of battery-grade ore totaling 65,756 short tons in 1947. Of this quantity 45,257 tons came from Gold Coast, 17,913 tons from U. S. S. R., 1,075 tons from India, 574 tons from Chile, 448 tons from Peru, 448 tons from Portuguese Guiana and Angola, and 41 tons from Mexico. The ore averaged 55.23 percent Mn or 87.36 percent MnO_2. Imports for consumption of battery ore totaled 67,563 tons of which 49,169 tons came from Gold Coast, 15,808 tons from U. S. S. R., 1,075 tons from India, 574 tons from Chile, 448 from Peru, 448 from Portuguese Guiana and Angola, and 41 tons from Mexico. The value of these withdrawals amounted to $2,025,553 or $29.98 per short ton f. o. b. foreign ports.

Manganese ore (35 percent or more Mn) imported into the United States, 1946-47, by countries

[U. S. Department of Commerce]

42020

Country	General imports 1/				Imports for consumption 2/					
	Short tons				Short tons				Value	
	Gross weight		Mn content		Gross weight		Mn content			
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
Belgian Congo	---	2,854	---	1,484	---	2,903	---	1,608	---	$ 42,257
Brazil	160,171	184,050	66,386	74,971	86,015	157,804	38,985	70,234	$1,122,840	1,957,910
British East Africa	---	530	---	267	---	---	---	---	---	---
Canada	17	257	8	138	17	257	8	138	770	7,425
Chile	149,564	43,450	68,066	20,523	143,498	42,078	65,222	19,930	4,491,443	1,341,484
Cuba	158,734	57,089	77,469	26,893	158,734	57,089	77,469	26,893	3,868,372	1,224,880
French Morocco	1	---	(3)	---	1	---	(3)	---	44	---
French West Africa	2,868	---	1,434	---	---	---	---	---	---	---
Gold Coast	351,633	192,277	177,942	99,563	279,653	217,317	144,275	112,102	3,091,369	3,316,990
India and Dependencies	371,753	421,121	185,548	206,705	321,280	284,535	160,958	140,007	3,847,384	3,497,822
Mexico	30,701	56,642	13,980	25,558	39,760	50,890	18,570	22,805	1,004,014	737,724
Mozambique	---	567	---	283	---	---	---	---	---	---
Peru	---	448	---	215	---	448	---	215	---	14,739
Philippines, Republic of	---	2,376	---	1,141	---	2,376	---	1,141	---	37,800
Portuguese Guiana and Angola	---	448	---	229	---	448	---	229	---	8,052
Union of South Africa	281,861	248,703	133,580	109,838	243,666	192,871	113,037	87,154	3,988,310	2,205,279
U. S. S. R.	241,920	331,006	121,753	162,297	241,920	288,976	121,753	141,975	8,243,077	6,898,819
	1,749,223	1,541,818	846,166	730,105	1,514,544	1,297,992	740,277	624,431	29,657,623	21,291,181

1/ Comprises ore received in the United States during year; part went into consumption, and remainder entered bonded warehouses.
2/ Comprises receipts during year for consumption and ore withdrawn from bonded warehouses during year (irrespective of time of importation).
3/ Less than one ton.

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary. JAMES BOYD, Director

FOR IMMEDIATE RELEASE

MINERAL MARKET REPORT
MMS NO. 1634

POTASH INDUSTRY OF THE UNITED STATES IN 1947

More new records were made in 1947 in the potash industry of the United States; both production of marketable potassium salts and sales reached new highs, according to reports by producers to the Bureau of Mines, United States Department of the Interior. Production in 1947 was 1,905,776 short tons of potassium salts containing 1,029,875 tons of equivalent potash (K_2O). This was an increase of 218,041 tons of potassium salts over 1946, and 98,063 tons of K_2O. The production of marketable potassium salts in the United States has increased each year since 1934. Sales (1,953,307 short tons) were 280,058 tons greater in 1947 than in 1946, and contained 1,053,266 tons K_2O. The value of the sales in 1947 was over 34 million dollars. The average value per ton of the potassium salts sold was considerably less in 1947 than in 1946, according to the reports from producers. Stocks of potassium salts in producers' hands at the end of 1947 were much less than on Dec. 31, 1946. Both imports and exports of fertilizer potash materials increased in 1947 but those for chemical uses declined. Domestic consumption of potash made a new high record, apparent consumption reaching 1,001,442 short tons K_2O.

Production of both grades of muriate of potash were larger in 1947 than in 1946. Output of manure salts also increased. Production of sulfates (sulfate of potash and sulfate of potash-magnesia) showed a slight decline.

The Western States production remains the dominant factor in the domestic potash industry. California, New Mexico, and Utah furnished virtually all of the 1947 output, the larger part coming from the deeply buried Permian saline sedimentary deposits of sylvite and langbeinite of the Carlsbad region of southeastern New Mexico. The Midwestern and Eastern States supplied only a small quantity--from well brines in Michigan and as a by-product of cement operations in Maryland.

Prepared by Bertrand L. Johnson and E. M. Tucker, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics & Statistics Division.

Salient Statistics of the Potash Industry in the United States, 1945-47

	1945	1946	1947
Production:			
Potassium salts (marketable).. short tons	1,588,305	1,687,735	1,905,776
Approximate equivalent, K_2O.......do.....	874,243	931,812	1,029,875
Sales by producers:			
Potassium salts..................do.....	1,597,160	1,673,249	1,953,307
Approximate equivalent, K_2O......do.....	870,370	928,374	1,053,266
Value at plant...........................	$30,313,919	$32,175,716	$34,716,051
Average per ton.......................	$18.98	$19.23	$17.77
Imports:			
Fertilizer materials.......... short tons	6,885	7,872	47,815
Approximate equivalent, K_2O......do.....	3,871	2,564	25,266
Value..................................	$230,714	$249,819	$1,887,771
Chemical materials............ short tons	10,327	8,327	3,228
Approximate equivalent, K_2O......do.....	2,152	1,801	712
Value..................................	$3,079,761	$2,100,915	$587,580
Total imports................. short tons	17,212	16,199	51,043
Approximate equivalent, K_2O......do.....	6,023	4,365	25,978
Value..................................	$3,310,475	$2,350,734	$2,475,351
Exports:			
Fertilizer materials..........short tons	104,687	96,822	102,939
Approximate equivalent K_2O..1/ ..do.....	58,310	53,930	57,337
Value..................................	$2,986,990	$2,983,751	$3,251,645
Chemical materials............short tons	18,966	23,905	21,970
Approximate equivalent, K_2O..1/..do.....	9,273	11,713	10,765
Value..................................	$3,648,795	$5,055,441	$5,434,462
Total exports.................short tons	123,653	120,727	124,909
Approximate equivalent, K_2O..1/..do.....	67,583	65,643	68,102
Value..................................	$6,635,785	$8,039,192	$8,686,107
Consumption:			
Apparent consumption: 2/			
Potassium salts..............short tons	1,490,719	3/ 1,568,721	1,879,441
Approximate equivalent, K_2O.....do.....	808,809	3/ 867,096	1,011,442

1/ Estimate by Bureau of Mines.
2/ Quantity sold by producers, plus imports, minus exports.
3/ Revised.

Potassium salts produced in the United States, 1945-47, by grades, in short tons

Grade	1945	1946	1947
Muriate of potash:			
60-62 percent K_2O minimum 1/...........	2/ 1,173,314	2/3/ 1,251,088	3/ 1,394,202
48-50 percent K_2O minimum..............	117,677	122,257	125,120
Manure salts..............................	115,798	98,333	174,145
Sulfate of potash and sulfate of potash-magnesia............................	2/ 181,516	2/ 216,057	212,309
	1,588,305	1,686,735	1,905,776

1/ Includes refined potash.
2/ Revised.
3/ Includes some 93-96 percent KCl.

The potash-producing companies in the United States in 1947, by States, were as follows:

California:
The American Potash & Chemical Corp., 122 East Forty-second St., New York, N. Y. (plant at Trona, on Searles Lake, Calif.).

Maryland:
North American Cement Corp., 41 East Forty-second St., New York, N. Y. (plant at Security, Md.).

Michigan:
The Dow Chemical Company, Midland, Michigan. (Brine wells and plant near Midland, Michigan).

New Mexico:
International Minerals & Chemical Corp., 20 North Wacker Drive, Chicago, Ill. (Mine and plant near Carlsbad, New Mexico).
Potash Company of America, Carlsbad, N. Mex., (Mine and plant near Carlsbad, New Mexico).
United States Potash Co., Inc., 30 Rockefeller Plaza, New York, N. Y. (Mine and plant near Carlsbad, New Mexico).

Utah:
Bonneville, Ltd., 540 West Seventh South, Salt Lake City, Utah. (Plant near Wendover, Utah).

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For release July 31, 1948.

MINERAL MARKET REPORT
MMS NO. 1635

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

METAL MINING IN ARIZONA, 1947 - FINAL ANNUAL FIGURES

The mining of copper ore, the most important part of Arizona's mining industry, rose to 37,810,448 tons in 1947, the largest output in any year in the history of the State, and a 24-percent gain over 1946, according to the Salt Lake City office of the Bureau of Mines, United States Department of the Interior. The State also made a record output (624,397 tons) of zinc-lead ore. These increases in ore output in 1947 resulted in a record production of lead and zinc, the greatest production of silver and copper since 1943, and the greatest production of gold since 1944. The State remained the largest producer of copper in the United States, ranked third in zinc, and again ranked first in the total value of the five metals.

In 1947 Arizona's output of gold was 21 percent higher than in 1946; silver increased 40 percent; copper 27 percent; lead 19 percent; and zinc 25 percent. The value of the five metals was $182,096,809, the highest since 1918, and a 58-percent gain over 1946. The value of the gold output was 2 percent of the total value; silver, 2 percent; copper, 84 percent; lead, 5 percent; and zinc, 7 percent. The value of the metals recovered from copper ore was $157,260,992 in 1947 ($96,309,170 in 1946), or 86 percent of the State total.

No labor strikes affected the mining industry in Arizona in 1947, and the higher average prices for silver, copper, and lead, a steady price for zinc, and an improvement in the labor supply during the year caused greater activity at the large producing copper mines and zinc-lead-silver mines in the State. In 1947, 78 percent of Arizona's gold production and 54 percent of its silver production were recovered from copper ore mined at Bisbee, Ajo, Jerome, Superior, Morenci, and Miami. The rest of the gold came largely from zinc-lead ore from two properties in the Big Bug and Warren (Bisbee) districts, and most of the remaining silver came from zinc-lead ore from the Big Bug, Harshaw, Pima, Warren (Bisbee), and Old Hat districts, gold-silver ore from the Tombstone district, and silver ore from the Ash Peak district. About 98 percent of Arizona copper production was recovered from copper ore from 10 mines in the Ajo, Copper Mountain (Morenci), Eureka (Bagdad), Golbe-Miami, Mineral Creek (Ray), Pioneer (Superior), Verde (Jerome), and Warren (Bisbee) districts; and 86 percent of its lead production and 87 percents of its zinc production were recovered from zinc-lead ore from 5 mines in the Big Bug (Humboldt), Harshaw, Old Hat, Pima, and Warren (Bisbee) districts.

Of the 38,636,280 tons of ore produced in 1947 in Arizona, 34,231,377 tons (89 percent) were treated at concentration plants, 3,671,800 tons (more than 9 percent) at copper leaching plants, 21,878 tons at cyanidation plants, and 456 tons at amalgamation plants; 710,769 tons (2 percent) were shipped crude to smelters.

Prepared by C. E. Needham and Paul Luff, Salt Lake City Office, Metal Economics Branch, Economics and Statistics Division.

The value of the metal production herein reported has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.210 per pound ($0.162); lead, $0.144 per pound ($0.109); and zinc, $0.115 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium Price Plan, which expired June 30, 1947.

Principal producing districts in Arizona in 1947

District	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)	Total value
Copper Mountain (Morenci)........	8,400	540,232	295,798,900	3,200	----------	$62,901,140
Globe-Miami.......	2,761	190,242	182,064,100	413,000	----------	38,561,737
Ajo..............	30,477	353,789	99,374,000	----------	----------	22,255,414
Warren (Bisbee)...	20,131	1,522,558	34,118,000	26,844,000	65,092,000	20,598,396
Mineral Creek (Ray)	431	28,074	37,870,600	397,500	----------	8,050,558
Pioneer (Superior)	9,339	314,126	31,844,300	----------	----------	7,298,452
Verde (Jerome)....	6,931	367,778	29,205,600	----------	----------	6,708,600
Eureka (Bagdad)...	9	31,326	12,981,900	31,700	514,400	2,818,585
Big Bug..........	9,720	386,452	378,500	4,646,000	9,982,200	2,586,401
Old Hat..........	639	84,726	568,700	9,205,800	6,853,200	2,332,222
Pima.............	------	143,653	516,400	5,818,000	9,453,400	2,163,383
Cochise..........	------	15,580	2,072,000	8,000	6,285,200	1,173,170
Harshaw..........	33	168,800	108,100	2,786,800	4,011,400	1,039,230

Mine production of gold, silver, copper, lead, and zinc in Arizona, 1946-47, in terms of recovered metals

Metals	1946		1947	
	Quantity	Value	Quantity	Value
Gold, fine ounces.....	79,024	$2,765,840	95,860	$3,355,100
Silver, fine ounces...	3,268,765	2,641,162	4,569,084	4,135,021
Copper, pounds........	578,446,000	93,708,252	732,436,000	153,811,560
Lead, pounds..........	47,860,000	5,216,740	57,132,000	8,227,008
Zinc, pounds..........	87,330,000	10,654,260	109,288,000	12,568,120
Total value..........	----------	114,986,254	----------	182,096,809

Mine production of gold, silver, copper, lead, and zinc in Arizona in 1947, by months, in terms of recovered metals

	Gold (ounces)	Silver (ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
January........	7,539	381,423	61,690,000	4,838,000	9,490,000
February.......	7,084	381,425	59,194,000	4,376,000	9,132,000
March..........	8,484	377,423	64,302,000	4,638,000	9,714,000
April..........	8,339	412,406	60,734,000	4,994,000	9,868,000
May............	8,564	397,440	63,052,000	4,780,000	9,150,000
June...........	8,549	391,420	59,734,000	5,138,000	9,892,000
July...........	7,908	377,425	64,222,000	4,776,000	9,190,000
August.........	7,338	385,425	59,724,000	4,618,000	8,440,000
September......	7,593	359,420	59,218,000	4,542,000	8,012,000
October........	8,038	377,430	62,226,000	4,934,000	9,032,000
November.......	8,537	362,427	58,054,000	4,722,000	8,660,000
December.......	7,887	365,420	60,286,000	4,776,000	8,708,000
Total, 1947...	95,860	4,569,084	732,436,000	57,132,000	109,288,000

Ore sold or treated in Arizona in 1947, with content in terms of recovered metals

Source	Mines producing	Ore (short tons)	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
Dry and siliceous gold ore.......	60	27,722	2,823	7,795	40,408	7,577	70,800
Dry and siliceous gold-silver ore	10	27,933	1,388	75,123	149,616	41,699	-------
Dry and siliceous silver ore.....	31	17,535	361	135,368	32,297	7,962	-------
	101	73,190	4,572	218,286	222,321	57,238	70,800
Copper ore....................	101	37,810,448	75,711	1/2,583,264	2/725,100,822	14,450	-------
Lead ore......................	105	24,478	1,398	94,728	230,003	5,955,323	298
Lead-copper ore...............	2	12	-------	101	1,214	1,954	-------
Zinc ore......................	8	16,619	53	10,256	200,997	65,084	3,199,606
Zinc-copper ore...............	10	82,192	168	45,355	2,346,941	33,095	8,082,163
Zinc-lead ore.................	32	624,397	13,639	1,598,652	4,229,942	50,700,341	97,248,183
Zinc-lead-copper ore..........	3	4,944	5	18,421	103,760	304,515	686,950
Total, lode mines...........	3/316	38,636,280	95,546	1/4,569,063	2/732,436,000	57,132,000	109,288,000
Total, placers................	30	-------	314	21	-------	-------	-------
Total, 1947...................	346	38,636,280	95,860	1/4,569,084	2/732,436,000	57,132,000	109,288,000
1946....................	227	31,058,179	79,024	4/3,268,765	5/578,446,000	47,860,000	87,330,000

1/ Includes 255 ounces recovered from underground mine-water precipitates.
2/ Includes 83,310,570 pounds recovered from ore leached and mine-water precipitates.
3/ A mine producing more than 1 class of ore is counted but once in arriving at total for all classes.
4/ Includes 475 ounces recovered from underground mine-water precipitates.
5/ Includes 73,554,391 pounds recovered from ore leached and mine-water precipitates.

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James Boyd, Director

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MINERAL MARKET REPORT
MMS. NO. 1636

BORON MINERALS IN 1947

Boron minerals production established a new high in 1947, surpassing 1946 by 12 percent on a boron trioxide basis, according to reports of producers to the Bureau of Mines, United States Department of the Interior. Output reached 501,935 short tons containing 145,700 tons of boron trioxide, compared with 430,689 tons of mineral containing 129,800 tons of boron trioxide sold or used by producers in 1946.

Boron salts are used mostly in sheet steel enamels and glass. Minor outlets are fertilizers, soaps, medicines, and water treatment. Five producers in California supply national requirements and in normal times furnish most of the foreign demand.

In 1947 the following firms reported production of boron minerals:

American Potash & Chemical Corp., Trona, Calif., on Searles Lake.
Pacific Coast Borax Co., 510 West Sixth Street, Los Angeles 14, Calif., mine at Boron.
Pittsburgh Plate Glass Co., Columbia Chemical Division, Bartlett, Calif.
United States Borax Co., 510 West Sixth Street, Los Angeles 14, Calif., mine near Shoshone.
West End Chemical Co., 608 Latham Square Building, Oakland 12, Calif., plant at Westend, on Searles Lake.

Boron minerals sold or used by producers in the United States, 1943-47 1/

Year	Gross weight Short tons	B_2O_3 content Short tons	Value
1943	256,633	87,600	$6,401,507
1944	277,586	91,700	6,579,587
1945	325,935	104,600	7,635,365
1946	430,689	129,800	9,575,866
1947	501,935	145,700	11,844,108

1/ Borax, anhydrous sodium tetraborate, kernite, boric acid, and colemanite.

Prepared by F. M. Barsigian under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch; Economics and Statistics Division.

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MINERAL MARKET REPORT
MMS. NO. 1637

BROMINE IN 1947

Sales of bromine compounds by primary producers in 1947 amounted to 78,177,650 pounds of contained bromine, an increase of 83 percent over 1946, according to reports of producers to the Bureau of Mines, United States Department of the Interior. The major use of bromine is in making ethylene dibromide which is mixed with tetraethyl lead to form "ethyl"-gasoline antiknock compound. Minor uses include photographic emulsions and laboratory reagents.

Bromine and bromides sold by primary producers in the United States, 1946-47

	Pounds		Value
	Gross weight	Bromine content 1/2/	
1946:			
Elemental bromine	2,657,355	2,657,355	$423,353
Sodium bromide	1,796,557	1,395,027	339,579
Potassium bromide	2,596,680	1,743,671	512,056
Ammonium bromide	541,926	442,103	119,443
Other bromides, including ethylene dibromide	43,353,081	36,381,227	7,166,003
	50,945,599	42,619,383	8,560,434
1947:			
Elemental bromine	2,316,192	2,316,192	358,374
Sodium bromide	1,225,213	951,377	235,091
Potassium bromide	3,015,145	2,024,670	608,577
Ammonium bromide	509,163	415,375	118,047
Other bromides, including ethylene dibromide	85,597,321	72,470,036	13,517,015
	92,663,034	78,177,650	14,837,104

1/ Figure calculated as theoretical bromine content present in compound.
2/ 1946 figures revised.

Prepared by F. M. Barsigian under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch; Economics and Statistics Division.

(OVER)

Bromine and bromine in compounds sold or used by producers in the United States,

1943-47

Year	Pounds	Value	Year	Pounds	Value
1943........	94,085,937	$19,107,065	1946.......	1/42,619,383	$8,560,434
1944........	102,112,462	19,712,819	1947.......	78,177,650	14,837,104
1945........	79,709,857	14,796,229			

1/ Revised.

Ethyl-Dow Chemical Co., Freeport, Tex., pioneer producer of bromine from sea water, was again the largest producer. The Dow Chemical Co., Midland, Mich., second-largest producer, recovered bromine from Michigan well brines as a by-product of magnesium and calcium chlorides. American Potash & Chemical Corp., Trona, Calif., recovered bromine from Searles Lake, and Westvaco Chemical Corp., (formerly Westvaco Chlorine Products Corp.), Newark, Calif., from sea-water bitterns. The following won bromine from well brines: Great Lakes Chemical Corp., Filer City, Mich.; Michigan Chemical Corp., St. Louis, Mich.; Morton Salt Co., Manistee, Mich.; Rademaker Chemical Corp., Eastlake, Mich.; and Westvaco Chemical Corp., South Charleston, W. Va.

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MINERAL MARKET REPORT
MMS. NO. 1638

CALCIUM CHLORIDE IN 1947

Sales of natural calcium (and calcium-magnesium) chloride set a new record in 1947 of 271,206 short tons, an increase of 3 percent over 1946, according to reports of producers to the Bureau of Mines, United States Department of the Interior. The main use of calcium chloride is in road stabilization. Other important uses include ice and dust control, and curing of concrete.

Calcium chloride and calcium-magnesium chloride from natural brines sold by producers in the United States, 1943-47
(In terms of 75 percent $(Ca,Mg)Cl_2$)

Year	Short tons	Value	Year	Short tons	Value
1943.......	199,796	$1,549,565	1946.......	262,147	$2,278,954
1944.......	200,964	1,621,227	1947.......	271,206	2,650,205
1945.......	218,320	1,818,219			

Eight plants produced calcium chloride in 1947.

The following firms reported production of calcium chloride (and calcium-magnesium chloride) from natural brines in 1947: California Rock Salt Co., 2436 Hunter Street, Los Angeles 21, Calif., plant at Amboy, Calif.; Dow Chemical Co., Midland, Mich.; Hill Brothers Chemical Co., 2159 Bay Street, Los Angeles 21, Calif.; plant at Amboy, Calif.; Michigan Chemical Corp., St. Louis, Mich.; National Chloride Co., Amboy, Calif.; Rademaker Chemical Corp., Eastlake, Mich.; Desert Properties Co., (Frank Thomas, Receiver), 374 Court Street, Rm. 11, San Bernardino, Calif., plant at Amboy, Calif.; and Westvaco Chemical Corp., South Charleston, W. Va.

Prepared by F. M. Barsigian under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch; Economics and Statistics Division.

Magnesia is recovered from a variety of sources, as shown in the following table.

Magnesia sold or used by producers in the United States, 1946-47, by kinds and sources

Magnesia	From magnesite, brucite, and dolomite		From well brines, raw sea water, and sea-water bitterns		Total	
	Short tons	Value	Short tons	Value	Short tons	Value
1946						
Caustic-calcined..	16,269	$1,310,584	28,909	$1,543,954	45,178	$2,854,538
Refractory........	174,121	4,539,978	70,703	2,691,891	244,824	7,231,869
	190,390	5,850,562	99,612	4,235,845	290,002	10,086,407
1947						
Caustic-calcined..	10,850	1,005,920	22,199	1,864,716	33,049	2,870,636
Refractory........	209,581	5,794,636	105,340	3,671,496	314,921	9,466,132
	220,431	6,800,556	127,539	5,536,212	347,970	12,336,768

OTHER MAGNESIUM COMPOUNDS

Increases were noted in the 1947 production of high-cost magnesias (as distinguished from the low-cost refractory and caustic-calcined grades) and magnesium salts with the exception of magnesium sulfate. Precipitated magnesium carbonate, used mostly in 85-percent magnesia insulation, showed an increase of 18 percent over 1946. A substantial increase was noted in the production of magnesium chloride which is used in the manufacture of magnesium metal.

Specified magnesium compounds produced, sold, and used by producers in the United States, 1946-47

Product	Plants	Produced (short tons)	Sold [1]		Used (short tons)
			Short tons	Value	
1946					
Specified magnesias (basis 100 percent MgO) and magnesium hydroxide, U.S.P. and technical:					
Extra-light and light magnesias..............	6	1,967	1,926	$808,240	----------
Heavy magnesia and magnesium hydroxide........	4	1,874	1,620	416,775	(2)
Total................................	[3] 6	[4] 3,841	3,546	1,225,015	(2)
Precipitated magnesium carbonate..................	11	47,423	8,805	876,306	38,495
Magnesium chloride, 100-percent basis..............	3	32,137	(5)	(5)	(5)
Magnesium sulfate, 100-percent basis..............	2	(5)	(5)	(5)	----------
1947					
Specified magnesias (basis 100 percent MgO) and magnesium hydroxide, U.S.P. and technical:					
Extra-light and light magnesias..............	5	1,464	1,450	721,653	----------
Heavy magnesia and magnesium hydroxide........	4	7,163	6,953	673,183	(2)
Total................................	[3] 5	[4] 8,627	8,403	1,394,836	(2)
Precipitated magnesium carbonate..................	12	58,142	10,239	1,047,953	47,645
Magnesium chloride, 100-percent basis..............	3	(5)	(5)	(5)	(5)
Magnesium sulfate, 100-percent basis..............	1	(5)	(5)	(5)	----------

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[1] Sales by a producer to an affiliated consumer for immediate use are not included under "Sold" but are under "Used."

[2] Magnesia and magnesium hydroxide used by producing firms in making other magnesias are not shown.

[3] A plant producing more than 1 grade or product is counted but once in arriving at total.

[4] Exclusive of magnesia made from magnesium hydroxide, to avoid duplication.

[5] Bureau of Mines not at liberty to publish figures.

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UNITED STATES DEPARTMENT OF THE INTERIOR

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MINERAL MARKET REPORT
MMS. NO. 1640

NATURAL SODIUM SULFATES AND CARBONATES IN 1947

Natural sodium sulfates and carbonates both enjoyed a record year, according to reports of producers to the Bureau of Mines, United States Department of the Interior. Natural sodium sulfate is used principally in the manufacture of kraft paper and glass, in stock feeds, as a flux in metallurgy, and in a new and rapidly expanding use in soapless detergents. Natural sodium carbonate is consumed principally on the Pacific coast, where it is used in glass manufacture and in alkali cleansers. Sales data are given in the following table.

Natural sodium sulfates and sodium carbonates sold or used by producers in the United States, 1943-47

Year	Sodium sulfates 1/		Sodium carbonates 2/	
	Short tons	Value	Short tons	Value
1943	160,622	$1,553,549	165,993	$2,544,086
1944	168,923	1,577,982	184,826	2,869,243
1945	178,196	1,525,159	194,045	3,034,118
1946	198,731	1,695,413	215,625	3,427,086
1947	257,294	3,329,094	293,051	5,862,178

1/ Tonnage figures for sulfates include Glauber's salt converted to 100 percent Na_2SO_4 basis. 2/ Soda ash and trona.

The following firms reported production of natural sodium sulfates in 1947: American Potash & Chemical Corp., Trona, Calif.; Arizona Chemical Co., 30 Rockefeller Plaza, New York 20, N. Y., plant at Brownfield, Tex.; Dale Chemical Industries, Inc., 4031 Goodwin Ave., Los Angeles 26, Calif., plant at Dale Lake, Calif.; Iowa Soda Products Co., Council Bluffs, Iowa, plant at Rawlins, Wyo., Ozark-Mahoning Co., P. O. Box 449, Tulsa 1, Okla., plant at Monahans, Tex.; and Wm. E. Pratt, P. O. Box 738, Casper, Wyo.

The following firms reported production of natural sodium carbonates in 1947: American Potash & Chemical Corp., Trona, Calif.; Natural Soda Products Co., 506 Central Tower Bldg., San Francisco 3, Calif., plant at Keeler; Permanente Metals Corp., Kaiser Bldg., Oakland, Calif., plant at Lone Pine; Pittsburgh Plate Glass Co., Columbia Chemical Division, Bartlett, Calif.; and West End Chemical Co., 608 Latham Square Bldg., Oakland 12, Calif., plant at Westend.

Prepared by F. M. Barsigian under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch; Economics and Statistics Division.

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MINERAL MARKET REPORT
MMS NO. 1641

TALC, PYROPHYLLITE, AND GROUND SOAPSTONE INDUSTRIES OF THE UNITED STATES IN 1947 [1]

GENERAL CONDITIONS

Another new high record in the mined production of talc, pyrophyllite, and ground soapstone was made in 1947, according to reports by producers to the Bureau of Mines, United States Department of the Interior. All-time records were also made in both quantity and value of these commodities sold or used. Total imports were slightly lower in quantity in 1947 than in 1946, but higher in value. Exports of "talc, steatite, soapstone, and pyrophyllite, crude and ground" increased both in quantity and value in 1947, and exports of "powders--talcum (in packages), face, and compact" were nearly three quarters of a million dollars greater in value in 1947 than in 1946.

Twelve States reported sales of talc, pyrophyllite or ground soapstone in 1947, the same States as in 1946. The greater part of the total sales were made by producers in the Eastern States. New York, in 1947, was still the leading producing State by a considerable margin, with North Carolina in second place, and California a close third. Increased sales were reported in many of the States in 1947, some of them reaching new highs.

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[1] Soapstone sold in slabs or blocks is not included.

Prepared by Bertrand L. Johnson and F. M. Barsigian, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch; Economics and Statistics Division.

(Over)

Salient statistics of the talc, pyrophyllite, 1/ and ground-soapstone industries in the United States, 1946-47

	1946		1947	
	Short tons	Value	Short tons	Value
Mined	460,554	(2)	3/ 516,453	(2)
Used	423,591	(2)	470,478	(2)
Sold by producers:				
Crude	36,963	$348,484	3/ 47,925	3/$389,535
Sawed and manufactured	756	227,751	1,018	239,407
Ground	419,347	5,869,109	467,151	7,053,539
	457,066	6,445,344	516,094	7,682,481
Imports for consumption: 4/				
Crude and unground steatite and French chalk	8	530	48	1,962
Cut and sawed	34	4,856	27	8,235
Ground, washed, or pulverized	18,407	394,881	17,629	414,726
	18,449	400,267	17,704	424,923
Exports:				
Talc, steatite, soapstone, and pyrophyllite, crude and ground	16,373	394,799	17,557	429,803
Powders--talcum (in packages), face, and compact	(5)	3,517,827	(5)	4,252,161
	-------	3,912,626	------	4,681,964

1/ In 1946: Mined, 97,765 short tons. Sold--crude, 10,716 tons, $85,002; ground, 85,835 tons, $913,301; total, 96,551 tons, $998,303. In 1947: Mined, 108,450 short tons. Sold--crude, 6,204 tons, $27,626; ground, 97,536 tons, $1,135,100; total, 103,740 tons, $1,162,726 (exclusive of pinite).

2/ Data not available.

3/ Includes pinite from Nevada.

4/ Exclusive of "Manufactures, n.s.p.f., except toilet preparations," as follows: 1946: $15,687; 1947: $13,525; quantities not available.

5/ Quantity not recorded.

SALES

The total quantity of domestic talc, pyrophyllite, and ground soapstone sold or used in 1947 was considerably greater than in 1946. This output--516,094 short tons --was another new record, exceeding the 1946 record by 59,028 tons. The total value of $7,682,481 in 1947 was nearly a million and a quarter dollars greater than in 1946, and was an all-time high. The average value per ton rose from $14.10 in 1946 to $14.89 in 1947.

Talc, pyrophyllite, and ground soapstone, sold by producers in the United States 1946-47, by States

State	1946		1947	
	Short tons	Value	Short tons	Value
California	78,170	$1,434,978	91,537	$1,595,422
Georgia	36,410	380,477	49,441	673,251
Maryland, Pennsylvania, and Virginia	42,505	424,334	47,111	401,599
Nevada	7,589	141,180	1/ 9,767	1/175,489
North Carolina	87,718	976,524	97,484	1,186,463
Vermont	75,144	843,247	77,327	999,704
Washington	5,084	38,051	(2)	(2)
Other States 3/	124,446	2,206,553	143,427	2,650,553
	457,066	6,445,344	516,094	7,682,481

1/Includes pinite.

2/Included under "Other States; Bureau of Mines not at liberty to publish figure.

3/1946: Montana, New York, and Texas; 1947; Montana, New York, Texas and Washington.

MARKETS

Five industries--paint, ceramics, rubber, insecticides, and roofing, consumed 79 percent of the sales of domestically produced talc, pyrophyllite, and ground soapstone in 1947. Increases were reported in the sales of all of these in 1947 over 1946, and also in the sales for foundry facings, and for crayons. Decreases were recorded in the sales for paper and for toilet preparations. Noteworthy was the increase of 52 percent in the sales for ceramic purposes. Consumption in paint, 22 percent of the total, was still the leading use.

Talc, pyrophyllite, and ground soapstone sold by producers in the United States, 1946-47, by uses 1/

Use	1946		1947	
	Short tons	Percent of total	Short tons	Percent of total
Paint	103,828	23	112,101	22
Ceramics	62,389	14	94,755	18
Rubber	65,980	14	71,840	14
Insecticides	64,954	14	66,952	13
Roofing	54,581	12	63,545	12
Paper	32,300	7	31,772	6
Toilet preparations	17,111	4	13,147	3
Foundry facings	7,045	2	7,496	1
Crayons	306	(2)	603	(2)
Other uses 3/	24,803	5	36,120	7
Unclassified	23,769	5	17,763	4
	457,066	100	4/516,094	100

1/Partly estimated.

2/Less than 0.5 percent.

3/Refractory, asphalt filler, textile, plaster, plastics, and miscellaneous other uses.

4/Includes pinite.

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PHOSPHATE ROCK INDUSTRY OF THE UNITED STATES IN 1947

General Conditions

Startling new high records were made in the domestic phosphate rock industry in 1947 according to reports submitted by the producers to the Bureau of Mines, United States Department of the Interior. Total mined production jumped nearly two million tons, from 7,168,839 long tons in 1946 to 9,121,081 tons in 1947. Of this 6,381,282 tons were mined in Florida, an increase of over a million tons; 1,489,980 tons in Tennessee; and 1,249,819 tons in the Western States, more than double the mined production of 1946.

Sales were correspondingly high. The total phosphate rock sold or used by producers in 1947 also attained a new peak of 9,087,199 long tons valued at $47,461,981, an increase of over $16,000,000 more than the 1946 total. The marketed production from Florida, Tennessee and the Western States exceeded the 1946 figures in each area. The P_2O_5 content of the domestic phosphate rock sold or used in 1947 reached a new high - 2,921,137 long tons.

Imports declined both in quantity and value. Exports increased by nearly a million tons, and more phosphate rock was exported from the Western States than from Florida. Apparent domestic consumption rose from 6,221,525 tons in 1946 to 7,445,948 tons in 1947. Stocks declined to 1,039,000 tons at the end of 1947.

Additional details of the production and distribution of phosphate rock are shown in the accompanying tables.

Prepared by Bertrand L. Johnson and E. M. Tucker, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics & Statistics Division.

Salient statistics of the phosphate rock industry in the United States, 1946-47

	1946				1947			
	Long tons		Value at mines		Long tons		Value at mines	
	Rock	P_2O_5 content	Total	Average	Rock	P_2O_5 content	Total	Average
Production (mined)	7,168,339	2,316,471	(1)	(1)	9,121,081	2,941,358	(1)	(1)
Sold or used by producers:								
Florida:								
Land pebble	4,807,563	1,615,919	$19,867,339	$4.13	6,314,077	2,108,702	$31,975,858	$5.06
Soft rock	97,067	19,652	387,708	3.99	88,620	17,976	326,064	3.68
Hard rock	100,881	36,627	762,127	7.55	79,330	28,850	618,330	7.79
Total Florida	5,005,511	1,672,198	21,017,174	4.20	6,482,027	2,155,528	32,920,252	5.08
Tennessee 2/ 3/	1,362,600	339,204	7,014,490	5.15	1,411,884	399,533	7,779,099	5.51
Idaho 4/.................	312,658	97,964	1,805,103	5.77	905,214	275,241	4,922,829	5.44
Montana	179,944	57,522	1,207,054	6.71	236,229	74,713	1,549,317	6.56
Wyoming	- - -	- - -	- - -	- -	51,845	16,072	290,484	5.60
Total United States	6,860,713	2,216,978	31,043,821	4.52	9,087,199	2,921,137	47,461,981	5.22
Imports 5/................	59,739	(1)	601,683	10.07	43,477	(1)	505,840	11.63
Exports 6/................	698,927	(1)	4,435,964	6.35	1,684,728	(1)	9,820,168	5.83
Apparent consumption 2/	6,221,525	(1)	- - -	- -	7,445,948	(1)	- - -	- -
Stocks in producers' hands, December 31:								
Florida................	630,000	210,000	(1)	(1)	518,000	170,000	(1)	(1)
Tennessee 2/.3/.8/.....	464,000	125,000	(1)	(1)	403,000	112,000	(1)	(1)
Western States	117,000	38,000	(1)	(1)	118,000	35,000	(1)	(1)
Total stocks	1,211,000	373,000	(1)	(1)	1,039,000	317,000	(1)	(1)

1/ Data not available.
2/ Includes sintered matrix.
3/ Includes small quantity from Virginia.
4/ Includes Utah.
5/ Market value (or price) at port and time of exportation to the United States.
6/ Exports as reported by producers.
7/ Quantity sold or used by producers plus imports minus exports.
8/ Includes brown-rock matrix of sinter grade, sintered brown rock, blue rock, and some matrix of washer grade.

Phosphate rock sold or used by producers in the United States, 1946-7, by grades and States

Grades-B.P.L. 1/ content (percent)	Florida		Tennessee 2/		Western States		United States	
	Long tons	Per-cent of total	Long tons	Per-cent of total	Long tons	Per-cent of total	Long tons	Per-cent of total
1946								
Below 60	100,938	2	637,053	47	2,433	1	740,424	11
60 to 66	18,759	(3)	286,416	21	- - -	-	305,175	4
68 basis, 66 minimum ...	213,556	4	32,581	2	203,857	41	449,994	7
70 minimum	838,290	17	220,299	16	357	(3)	1,058,946	15
72 minimum	1,150,749	23	184,857	14	283,899	58	1,619,505	24
75 basis, 74 minimum ...	1,448,156	29	- - -	-	2,056	(3)	1,450,212	21
77 basis, 76 minimum ...	1,077,158	22	501	(3)	- - -	-	1,077,659	16
Above 85 (apatite) ..... Undistributed	157,905	3	893	(3)	- - -	-	158,798	2
	5,005,511	100	1,362,600	100	492,602	100	6,860,713	100
1947								
Below 60	93,028	1	743,219	53	2,669	(3)	838,916	9
60 to 66	5,798	(3)	309,572	22	314,153	26	629,523	7
68 basis, 66 minimum ...	761,058	12	25,186	2	144,880	12	931,124	10
70 minimum	976,436	15	191,153	14	149,668	13	1,317,257	15
72 minimum	1,526,077	24	140,797	9	443,255	37	2,110,129	23
75 basis, 74 minimum ...	2,281,163	35	- - -	-	82,938	7	2,364,101	26
77 basis, 76 minimum	837,726	13	477	(3)	1,092	(3)	839,295	9
Above 85 (apatite) ..... Undistributed	741	(3)	1,480	(3)	54,633	5	56,854	1
	6,482,027	100	1,411,884	100	1,193,288	100	9,087,199	100

1/ Bone phosphate of lime.
2/ Includes a small quantity from Virginia.
3/ less than 0.5 percent.

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Phosphate rock sold or used by producers in the United States, 1946-7, by uses and States

Uses	Florida		Tennessee 1/		Western States		United States	
	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total	Long tons	Per cent of total
1946								
Domestic:								
Superphosphates	3,959,108	79	449,496	33	195,838	40	4,604,442	67
Phosphates, phosphoric Acid, phosphorus, ferrophosphorus	231,338	5	653,885	48	9,278	2	894,501	13
Direct application to soil .	314,575	6	212,405	16	1,117	(2)	528,097	8
Fertilizer filler	32,303	1	18,454	1	- - -	-	50,757	1
Stock and poultry feed	52,501	1	500	(2)	- - -	-	53,001	1
Undistributed 3/	1,047	(2)	27,860	2	2,081	(2)	30,988	(2)
Exports 4/	414,639	8	- - -	-	284,288	58	698,927	10
	5,005,511	100	1,362,600	100	492,602	100	6,860,713	100
1947								
Domestic:								
Superphosphates.............	4,842,304	75	275,438	20	270,038	23	5,387,830	59
Phosphates, phosphoric acid, phosphorus, ferrophosphorus	327,151	5	799,422	57	8,035	1	1,134,608	13
Direct application to soil .	485,517	7	278,280	20	328	(2)	764,125	9
Fertilizer filler	18,006	(2)	19,627	1	- - -	-	37,633	(2)
Stock and poultry feed	36,496	1	3,732	(2)	- - -	-	40,228	(2)
Undistributed 3/............	- - -	-	35,335	2	2,712	(2)	38,047	(2)
Exports 4/......................	772,553	12	- - -	-	912,175	76	1,684,728	19
	6,482,027	100	1,411,884	100	1,193,288	100	9,087,199	100

1/ Includes a small quantity from Virginia.

2/ Less than 0.5 percent.

3/ Includes phosphate rock used in pig-iron blast furnaces, parting compounds, research, defluorinated phosphate rock, refractories, and other uses.

4/ As reported to the Bureau of Mines by domestic producers.

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MINERAL MARKET REPORT
MMS NO. 1643

METAL MINING IN ALASKA, 1947 - FINAL ANNUAL FIGURES

An outstanding feature of the Alaska mineral production record for 1947 was the recovery of zinc, for the first time, from Alaska ores, according to the San Francisco Office of the Bureau of Mines, United States Department of the Interior. Production of gold in Alaska in 1947, almost entirely from placer operations, increased 23 percent above the output for 1946. The output of silver advanced 58 percent, and lead gained 130 percent. Copper production - entirely as a byproduct from lead ore - remained relatively small, although the total recovered was six times that in 1946.

The Alaska production in 1947 (in terms of recoverable metal) was 279,988 fine ounces of gold, 66,150 fine ounces of silver, 12 short tons of copper, 264 tons of lead, and 25 tons of zinc. Production in 1946 was 226,781 ounces of gold, 41,793 ounces of silver, 2 tons of copper, and 115 tons of lead.

The total value of the output of the five metals was $9,946,268 compared with $7,996,822 in 1946. The value of each metal for 1947, with comparable figures for 1946 in parentheses, was as follows: Gold, $9,799,580 ($7,937,335); silver, $59,866 ($33,769); copper, $5,040 ($648); lead, $76,032 ($25,070); and zinc, $5,750 (none).

Average metal prices used in 1947, which for copper, lead, and zinc, are weighted and include the increment of premiums paid to mine operators by the Office of Metals Reserve, were: Gold $35 a fine ounce; silver $0.905 a fine ounce; copper, $0.210 a pound; lead, $0.144 a pound; and zinc, $0.115 a pound. The prices in 1946 were: $35 for gold; $0.808 for silver; $0.162 for copper; $0.109 for lead, and $0.122 for zinc.

GOLD

Production of 279,988 ounces of gold in Alaska in 1947, although 23 percent above the output in 1946, was only 37 percent of the production in 1940 (755,970 ounces valued at $26,458,950). Twenty-seven dredges of the connected-bucket type recovered 68 percent of the total placer gold, non-floating washing plants accounted for 16 percent, hydraulicking 13 percent, and dragline dredging 2 percent. In all, 99 percent of the total Alaska gold output in 1947 came from 260 placer mines. One percent of the total Alaska gold output came from 19 lode mines; 60 percent of the ore mined was gold ore. The greatest proportion of the gold came from a relatively few mines; the leading five producers (all placer), listed in

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Prepared by Alfred L. Ransome, San Francisco Office, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

order of output, supplied 61 percent of the Alaska total: United States Smelting Refining and Mining Co., Fairbanks district (connected-bucket dredges); New York Alaska Gold Dredging Corp., Tuluksak-Aniak district (connected-bucket dredges); Cripple Creek Mining Co., Innoko district (dry-land dredge); Arctic Circle Exploration Co., Fairhaven district (connected-bucket dredge); and the Yukon Placer Mining Co., Fortymile district (non-floating washing plant).

SILVER

Of the silver produced in Alaska in 1947, 66 percent was a byproduct of gold mining, and 34 percent came from lead ore (including a small quantity from zinc ore). The most important producer of silver in 1947 was the United States Smelting Refining and Mining Co.; the silver was a byproduct of connected-bucket gold dredging operations in the Fairbanks district. Taking a close second place was the J. H. Scott Co. which recovered silver as a byproduct from lead ore produced from the Riverside mine, Hyder district, Southeastern Alaska region.

COPPER, LEAD, AND ZINC

Production of the base metals, copper, lead, and zinc was limited to output from two mines in the Southeastern Alaska region. Copper was recovered as a byproduct from lead concentrate shipped from the Riverside mine near Hyder, operated by J. H. Scott Co. The lead produced came almost entirely from the Riverside mine. Available records indicate that zinc production of 50,000 pounds was the first to be produced from Alaska ores; the metal was recovered from zinc-lead concentrate shipped from the Big Four Mining Co.'s Maloney mine on George Inlet, Ketchikan district.

Mine production of gold, silver, copper, lead, and zinc in Alaska in 1947, by months and regions, in terms of recovered metals
(Based on mint and smelter receipts)

	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
By months: 1/					
January--------	396	126	--------	--------	--------
February--------	739	139	--------	--------	--------
March----------	839	128	--------	--------	--------
April----------	354	1,057	--------	15	--------
May------------	2,256	465	--------	--------	--------
June-----------	17,409	2,946	--------	--------	--------
July-----------	44,483	6,928	--------	--------	--------
August---------	48,066	7,510	1	2	11
September------	34,649	13,809	3	105	--------
October--------	73,237	17,220	4	54	--------
November-------	34,215	9,197	3	51	14
December-------	23,345	6,625	1	37	--------
Total, 1947--	279,988	66,150	12	264	25
By regions:					
Cook Inlet-Susitna----------	4,404	672	--------	--------	--------
Copper River---	1,294	171	--------	--------	--------
Kenai Peninsula	395	120	--------	--------	--------
Kuskokwim------	19,994	2,295	--------	--------	--------
Seward Peninsula and Northwestern Alaska 2/--------	26,220	3,012	--------	--------	--------
Southeastern Alaska---------	973	22,524	12	264	25
Yukon River Basin---------	226,708	37,356	--------	--------	--------
Total, 1947-	279,988	66,150	12	264	25
1946-	226,781	41,793	2	115	--------

1/ Adjusted to final totals.
2/ Combined to avoid disclosure of individual output.

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MINERAL MARKET REPORT
M.M.S. NO. 1644

FINAL ACTUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE.

METAL MINING IN NEVADA, 1947 - FINAL ANNUAL FIGURES

The quantity of zinc produced in Nevada in 1947 declined 25 percent from the record level attained in 1946, according to the San Francisco Office of the Bureau of Mines, United States Department of the Interior. The expiration, on June 30, 1947, of the Premium-Price Plan for copper, lead, and zinc--which was the principal factor in the decreased zinc output--had a negligible effect on the production of copper (up 2 percent) and lead (down less than 1 percent). Silver production gained 10 percent, largely as the result of increased prices of silver and lead, but the production of gold was 2 percent below that of 1946 and was the lowest in quantity since 1895. The total value of gold, silver, copper, lead and zinc recovered in 1947 was $31,162,642--an increase of 15 percent from $27,026,416 in 1946. The value of lead and copper each increased 32 percent, and silver 23 percent, whereas zinc decreased 29 percent, and gold 2 percent.

The value of the metal production herein reported has been calculated at the following prices; corresponding prices for 1946 are shown in parentheses: Gold, $35 per fine ounce ($35); silver, $0.905 per fine ounce ($0.808); copper, $0.210 per pound ($0.162); lead, $0.144 per pound ($0.109); and zinc, $0.115 per pound ($0.122). The weighted average prices for base metals in both years include premium payments made under the Premium-Price Plan.

The principal producers of gold, silver, copper, lead, and zinc in Nevada in 1947 were: Gold and copper, Kennecott Copper Corp. (Nevada Mines Division), Robinson district, White Pine County; silver, lead, and zinc, Combined Metals Reduction Co. & Raymond Ely West Mining Co. (Pioche group), Pioche district, Lincoln County.

Prepared by Alfred L. Ransome, San Francisco Office, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Mine production of gold, silver, copper, lead, and zinc in Nevada, by months, in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January----------	8,345	121,412	3,467	537	1,976
February---------	7,364	107,251	4,164	508	1,766
March------------	6,506	95,395	4,269	567	1,413
April------------	6,751	107,251	4,217	537	1,355
May--------------	8,345	137,110	4,815	664	1,260
June-------------	7,844	151,271	3,157	616	1,689
July-------------	7,711	140,491	4,216	611	1,289
August-----------	8,150	111,401	4,580	660	1,336
September--------	7,977	100,599	4,341	547	1,355
October----------	7,507	104,507	4,153	586	1,432
November---------	6,435	102,092	4,060	664	1,145
December---------	6,128	98,799	4,164	664	954
1947: Quantity--	89,063	1,377,579	49,603	7,161	16,970
Value-----	$3,117,205	$1,246,709	$20,833,260	$2,062,368	$3,903,100
1946: Quantity--	90,680	1,250,651	48,616	7,175	22,649
Value------	$3,173,800	$1,010,526	$15,751,584	$1,564,150	$5,526,356

Mine production of gold, silver, copper, lead, and zinc in Nevada, by counties, in terms of recovered metal

County	Mines	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)	Total value
Churchill--	10	126	5,295	11	8	---	$16,126
Clark------	29	1,777	35,487	33	590	725	444,841
Douglas----	1	14	5	---	---	---	495
Elko-------	28	583	111,693	1,147	798	248	890,091
Esmeralda--	10	395	2,157	---	14	---	19,809
Eureka-----	9	148	64,606	10	345	902	374,668
Humboldt---	14	542	8,629	2	5	---	29,059
Lander-----	17	22,802	59,048	517	43	---	1,081,032
Lincoln----	16	3,902	553,899	211	3,909	14,612	5,213,021
Lyon-------	14	4,527	14,696	51	2	---	193,741
Mineral----	24	485	44,075	6	356	53	174,101
Nye--------	43	2,925	132,292	9	120	8	262,279
Ormsby-----	3	9	769	3	6	---	3,999
Pershing---	25	5,557	76,522	3	312	3	355,553
Storey-----	9	5,028	68,621	---	---	---	238,082
Washoe-----	4	194	66	---	---	---	6,850
White Pine-	51	40,049	199,719	47,600	653	419	21,858,895
Total:1947-	[1] 307	89,063	1,377,579	49,603	7,161	16,970	31,162,642
1946	[1] 226	90,680	1,250,651	48,616	7,175	22,649	27,026,416

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[1] Includes 31 placer mines in 1947, and 33 in 1946.

Ore sold or treated in Nevada in 1947, with content in terms of recovered metals

Source	Ore 1/ (short tons)	Gold (fine ounces)	Silver (fine ounces)
Dry and siliceous gold ore	425,347	32,796	102,813
Dry and siliceous gold-silver ore	11,647	1,699	108,993
Dry and siliceous silver ore	25,094	581	182,699
Copper ore	5,828,016	42,673	285,249
Lead ore	24,139	555	243,440
Zinc ore	3,913	28	7,082
Zinc-lead ore	223,291	3,728	441,359
Zinc-lead-copper ore	188	2	3,207
Total, lode mines	6,541,635	82,062	1,374,842
Placers	---	7,001	2,737
Total; 1947	6,541,635	89,063	1,377,579
1946	5,725,805	90,680	1,250,651

Source	Copper (pounds)	Lead (pounds)	Zinc (pounds)
Dry and siliceous gold ore	60,800	6,400	---
Dry and siliceous gold-silver ore	17,800	68,500	---
Dry and siliceous silver ore	28,700	455,300	113,100
Copper ore	2/98,937,800	332,100	251,300
Lead ore	62,900	4,867,700	70,600
Zinc ore	31,800	264,600	1,024,900
Zinc-lead ore	56,200	8,299,900	32,441,100
Zinc-lead-copper ore	10,000	37,500	39,000
Total: 1947	2/99,206,000	14,322,000	33,940,000
1946	3/97,232,000	14,350,000	45,298.000

1/Includes 16,832 tons of old tailings in 1947, and 6,367 tons in 1946.
2/Includes 2,607,400 pounds recovered from precipitates.
3/Includes 3,229,000 pounds recovered from precipitates.

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UNITED STATES DEPARTMENT OF THE INTERIOR

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MINERAL MARKET REPORT
MMS NO. 1645

BARITE AND BARIUM CHEMICALS IN 1947

The United States continued to lead the world in barite production and established a record in 1947 of 884,219 short tons, according to reports of producers to the Bureau of Mines, United States Department of the Interior. Primary barite sold or used by producers totaled 834,082 short tons valued at $6,171,342. The average value of primary barite sold or used increased 16 cents per ton to $7.40. Imports of crude barite were up to 53,222 short tons, a 19 percent increase. Barite sold or used plus imports (our apparent new supply) was 887,304 short tons, 94 percent of which was from domestic sources.

Arkansas produced more than any other State, shipping 376,017 short tons; Missouri followed with 291,619 tons. Georgia was third with 61,202 tons. Arkansas and Missouri reported substantial increases in output, whereas Georgia and Tennessee reported decreases.

Reserves in the United States, according to testimony given by industry before the Committee for Reciprocity Information, Tariff Commission, total about 40 million tons of commercial grade barite (roughly blocked out).

The chief use of barite in 1947 was in oil-well drilling; lithopone was second, chemicals third, fillers fourth, and glass fifth. The distribution of consumption of barite in the United States in 1947 was reported as follows (1946 in parentheses): For well drilling, 467,350 short tons (372,610); for lithopone, 167,321 (154,166); for chemicals, 107,267 (102,439); for glass, 33,641 (29,181); for paint filler, 29,000 (26,000); for rubber filler, 17,000 (20,000); and for other purposes, including grinding losses, 14,239 (17,677); total, 835,818 (722,073). These figures include both foreign and domestic barite.

The term "primary barite" as used here applies to barite as first offered to the trade, whether lump, crushed or ground. Such figures thus include ground barite from Malvern, Ark.; El Portal, Calif.; and Mesa, Ariz; and lump barite from open pits and underground workings. Where ground barite has been reported to the Bureau of Mines as original production, estimates of value of the lump equivalent of the ground have been assigned to such tonnage.

Prepared by Lawrence G. Houk and F. M. Barsigian, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

(Over)

Salient statistics of the barite, witherite, and barium-chemical industries in the United States, 1944-47

	1944	1945	1946	1947
Barite:				
Primary:				
Produced.............short tons.	515,136	692,330	725,223	884,219
Sold or used by producers:				
Short tons......................	518,617	696,062	724,362	834,082
Value: 1/				
Total...........................	$3,558,489	$5,348,652	$5,242,755	$6,171,342
Average.........................	$6.86	$7.68	$7.24	$7.40
Imports for consumption:				
Short tons......................	67,888	56,894	44,662	53,222
Value: 2/				
Total...........................	$459,664	$382,611	$274,267	$378,294
Average.........................	$6.77	$6.72	$6.14	$7.11
Apparent new supply 3/short tons.	586,505	752,956	769,024	887,304
Domestic...............percent.	88.4	92.4	94.2	94.0
Reported consumption..short tons.	595,563	720,903	722,073	835,818
Ground (and crushed):				
Sold by producers: 4/				
Short tons......................	344,757	468,939	455,240	549,965
Value...........................	$5,455,835	$7,519,759	$7,208,193	$8,979,408
Imports for consumption:				
Short tons......................	11,964	1	----------	----------
Value...........................	$243,917	$15	----------	----------
Witherite (crude):				
Imports for consumption:				
Short tons......................	----------	896	1,107	739
Value...........................	----------	$26,736	$31,599	$25,757
Barium chemicals:				
Sold by producers:				
Short tons......................	73,591	68,034	80,871	72,919
Value...........................	$7,740,686	$6,493,448	$7,003,756	$7,035,104
Imports for consumption:				
Short tons......................	95	35	(5)	72
Value...........................	$7,382	$3,098	$58	$11,448
Lithopone:				
Sold or used by producers: 6/				
Short tons......................	142,905	136,161	147,001	165,024
Value...........................	$11,208,891	$10,645,316	$11,840,596	$17,382,592
Exports of lithopone:				
Short tons......................	11,551	11,576	9,651	13,652
Value...........................	$1,107,430	$1,049,961	$888,555	$1,784,414

1/ F.o.b. mine shipping point.
2/ Declared value f.o.b. foreign market.
3/ Barite sold or used by producers plus imports.
4/ Although all barite is crushed before use in chemicals, barite used in chemicals is not included in the 1945-47 totals. In 1944 and prior years small quantities of crushed barite used by chemical producers are included.
5/ Less than 1 ton.
6/ Exclusive of cadmium lithopone.

Domestic barite sold or used by producers in the United States, 1946-47, by States

State	1946		1947	
	Short tons	Value	Short Tons	Value
Arkansas	288,286	1/ 1,344,982	376,017	1/ 2,390,643
Georgia	69,274	636,583	61,202	639,865
Missouri	270,850	2,168,067	291,619	2,405,249
Nevada	(2)	(2)	37,388	261,168
Tennessee	33,595	272,169	31,476	285,853
Other States 3/	62,357	270,954	36,380	188,564
	724,362	5,242,755	834,082	6,171,342

1/ Partly estimated.
2/ Included under "Other States."
3/ 1946: Arizona, California and Nevada; 1947: Arizona and California.

In the accompanying table, figures for consumption of ground barite in "Paint," "Rubber," and "Undistributed" have been estimated partly by the grinders and partly by the Bureau of Mines.

Ground (and crushed) barite sold by producers, 1945-47, by consuming industries

Industry	1945	1946	1947
	Short tons	Short tons	Short tons
Well drilling	407,371	372,610	467,350
Paint	21,000	26,000	29,000
Glass	25,761	29,181	33,641
Rubber	10,000	20,000	17,000
Undistributed	4,307	7,449	2,974
	468,939	455,240	549,965

Lithopone 1/ sold or used by producers, 1945-47, by consuming industries

Industry	1945	1946	1947
	Short tons	Short tons	Short tons
Paints, enamels, and lacquers	109,398	123,279	134,830
Floor coverings and textiles	15,821	15,167	17,469
Rubber	977	1,607	3,085
Other	9,965	6,948	9,640
	136,161	147,001	165,024

1/ Exclusive of cadmium lithopone.

(Over)

Barium chemicals produced and used or sold by producers in the United States, 1946-47, in short tons

Chemical	Plants	Produced	Used by producers 1/ in other barium chemicals 2/	Sold by producers 3/	
				short tons	value
Black ash: 4/					
1946	15	163,131	162,889	505	$ 22,876
1947	15	173,385	172,987	248	15,888
Carbonate (synthetic):					
1946	5	43,611	21,569	21,700	1,313,233
1947	5	46,761	20,767	25,985	1,739,144
Chloride (100 percent basis):					
1946	3	16,037	4,974	10,821	927,155
1947	4	14,133	3,984	9,867	986,958
Hydroxide:					
1946	3	3,024	585	2,503	320,474
1947	4	5,774	568	4,910	787,711
Nitrate:					
1946	1	(5)	--------	(5)	(5)
1947	1	(5)	--------	(5)	(5)
Oxide:					
1946	3	6,507	6,105	375	64,522
1947	3	7,318	6,865	378	74,320
Peroxide:					
1946	2	(5)	(5)	(5)	(5)
1947	2	(5)	(5)	(5)	(5)
Sulfate (synthetic):					
1946	8	34,171	16,956	18,791	1,330,651
1947	8	27,353	10,980	16,086	1,302,869
Other barium chemicals: 6/					
1946	(7)	28,880	4,395	26,176	3,024,845
1947	(7)	21,107	4,092	15,445	2,128,214
Total: 8/					
1946	19	--------	--------	80,871	7,003,756
1947	20	--------	--------	72,919	7,035,104

1/ Of any barium chemical.
2/ Includes purchased material.
3/ Exclusive of purchased material and exclusive of sales by one producer to another.
4/ Black-ash data include lithopone plants.
5/ Included under "Other barium chemicals."
6/ Consists mostly of titanium dioxide-barium sulfate pigments, with small quantities of barium acetate, chromate, nitrate, oxide, perchlorate, peroxide, and sulfide. Specific chemicals may not be revealed by specific years.
7/ Plants included in above figures. 8/ A plant producing more than 1 product is counted but once in arriving at grand totals.

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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

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FOR RELEASE AUGUST 30, 1948. MINERAL MARKET REPORT, NO. MMS 1646.

ANOTHER LARGE INCREASE IN SALES OF LIQUEFIED PETROLEUM GASES IN 1947

An increase by a third in domestic sales of liquefied petroleum gases realized in 1946 was repeated in 1947 when deliveries of 2,209,797,000 gallons were 30 percent above a revised total of 1,704,262,000 for 1946 according to a survey made by the Petroleum Economics Branch, Bureau of Mines, United States Department of the Interior. Added supplies of liquefied petroleum gases from petroleum refineries, natural gasoline and cycle plants, as well as additional equipment for the transportation, storage and use made possible another big expansion in sales of this fuel in 1947. Records compiled by the Bureau of the Census, United States Department of Commerce show exports of 53,233,000 gallons of liquefied petroleum gases in 1947 compared with 49,091,000 in 1946--a nominal gain of 8 percent compared with outstanding increases of 88 percent in 1946 and 79 percent in 1945.

Table I - Sales of liquefied petroleum gases in the United States, 1942-47
(Thousands of gallons)

Year	Butane	Propane	Butane-propane mixtures	Pentane	Quantity	Total percentage increase over previous year
1942.....	128,560	150,511	301,917	4,452	585,440	26.5
1943.....	140,122	218,273	312,683	4,155	675,233	15.3
1944 1/..	122,870	324,355	450,846	(5)	898,071	33.0
1944 2/..	273,116	335,884	451,156	(5)	1,060,156	-
1945	325,140	444,581	507,045	(5)	1,276,766	20.4
1946 3/..	441,418	551,250	711,594	(5)	1,704,262	33.5
1947 4/..	398,635	863,686	947,476	(5)	2,209,797	29.7

1/ Without synthetic rubber components for comparison with 1943. 2/ Includes material delivered for synthetic rubber components. 3/ Revised. 4/ Subject to revision. 5/ Not available.

Quantities of liquefied petroleum gases reported for domestic fuel, gas manufacturing, and chemical raw material showed important gains in 1947 over 1946, while only moderate increases were indicated for industrial use and internal-combustion-engine fuel. A smaller quantity of liquefied petroleum gases was sold for synthetic rubber components in 1947 than in 1946. Liquefied petroleum gases delivered for domestic consumption totaled 1,150,538,000 gallons in 1947, a quantity more than 50 percent above the 1946 total of 758,466,000 gallons. The remarkable growth in the demand for liquefied petroleum gases for household consumption is evident when it is noticed that the total sold for this particular use in 1947 was above that delivered for all purposes as recently as 1944. It can be added also that the proportion of this fuel sold for domestic use has risen from 42 percent of all requirements in 1945 to 45 percent in 1946 and then to 52 percent of total sales in 1947. Liquefied petroleum gases delivered to manufactured-gas companies for enriching manfactured gas, for direct distribution through mains, and for stand-by purposes has mounted

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Prepared by A. T. Coumbe, Petroleum Economics Branch, Economics and Statistics Division.

sharply in recent years. The 1947 quantity of 169,332,000 gallons delivered for these purposes was nearly double 1946 requirements of 86,660,000 which in turn was over 60 percent above the 1945 total. The proportion of liquefied petroleum gases going to manufactured-gas companies has increased from 4 percent of all sales in 1944 and 1945 to 5 percent in 1946 and to nearly 8 percent in 1947.

The use of liquefied petroleum gases as fuel by industrial plants has not expanded at the high rates noted for some of the other demands because of the lack of adequate equipment for distribution and use, and also because of competitive market requirements. Sales of liquefied petroleum gases intended for industrial fuel increased from 159,115,000 gallons in 1946 to 173,601,000 in 1947--a gain of 9 percent in contrast to a slight decline in volume for 1946. It can be added that the industrial fuel item represented about 9 percent of total sales in 1946 and 8 percent in 1947. Liquefied petroleum gases sold for internal-combustion-engine fuel rose by 6 percent in 1947 in contrast to gains of about one percent for both 1945 and 1946. The quantities reported for engine fuel were 99,786,000 gallons in 1947 compared with 94,592,000 in 1946 and these totals accounted for about 5 percent of the market in both years.

Liquefied petroleum gases sold for nonfuel uses showed a net gain of about 10 million gallons in 1947, however, the quantity reported for synthetic rubber components dropped sharply, as several synthetic rubber plants were shut-down due mainly to increased imports of natural rubber, while conversely deliveries of these hydrocarbons for use as chemical raw material continued the strong upward trend of recent years. Purchases of liquefied petroleum gases by the synthetic rubber industry increased over 40 percent in 1946, however, the 1947 quantity of 201,535,000 gallons was a third less than the 293,892,000 reported for 1946. Viewed in another way C_3 and C_4 material diverted for synthetic rubber components declined from 17 percent of all sales in 1946 to a 9-percent share in 1947. Chemical plants have about tripled their requirements for liquefied petroleum gases for use as raw material since 1944 and the 1947 total of 414,267,000 gallons was 33 percent over the comparative item for 1946 of 311,499,000 gallons. These quantities accounted for about 19 percent of the total market for liquefied petroleum gases during the two years.

The proportionate share of butane in total sales of liquefied petroleum gases dropped noticeably in 1947, while that for propane rose almost correspondingly, as available supplies of the latter increased and as more high-pressure equipment for handling, storing, and using propane came on the market. The relative amount of butane-propane mixtures in total sales also gained slightly. Butane has satisfied about 26 percent of the demand for liquefied petroleum gases in recent years, however, in 1947, with over a third less going to synthetic rubber and chemical plants for raw material and with larger quantities diverted for the manufacture of motor fuel, the butane share in sales dropped to 18 percent of the total. Quantitatively, deliveries of butane declined from 441,418,000 gallons in 1946 to 398,635,000 in 1947--a shrinkage of about 10 percent. There was a pronounced turn to propane for fuel and chemical raw material in 1947 with the result that sales mounted from 551,250,000 gallons in 1946 to 863,686,000 in 1947--a gain of 57 percent. Viewed in another way, the proportionate share for propane in total deliveries increased from 32 percent in 1946 to 39 percent in 1947. There was also an active demand for butane-propane mixtures in 1947 when sales of 947,476,000 gallons were 33 percent over the 1946 total of 711,594,000 gallons. It can be added that the market share for butane-propane mixtures increased from 42 percent of all requirements in 1946 to 43 percent in 1947.

Butane sold for synthetic rubber components and chemical raw material dropped sharply in 1947, while all other uses showed gains. Deliveries to synthetic rubber plants of 271,925,000 gallons in 1946 and representing 62 percent of all butane sales declined to 187,733,000 in 1947 or to only 47 percent of the market. There were 18,796,000 gallons of butane sold for chemical raw material in 1947, a drop of 59 percent compared with 45,959,000 reported for 1946.

Butane sold for domestic or household consumption, while not relatively important in volume as propane and butane-propane mixtures, increased from 45,285,000 gallons in 1946 to 62,092,000 in 1947--a gain of 37 percent--and the total for 1947 accounted for 16 percent of the butane market compared with a 10-percent share in 1946. Manufactured-gas companies purchased 58,424,000 gallons of butane in 1947 or more than double their 1946 requirements of 25,682,000 gallons. Butane delivered to industrial plants for fuel also showed an important increase from 48,100,000 gallons in 1946 to 61,901,000 in 1947. Only a comparative small amount of butane is used for fuel in internal-combustion engines, however, the demand increased from 4,467,000 gallons in 1946 to 9,662,000 in 1947.

Less propane was used as fuel by industrial plants and as raw material for the making of synthetic rubber in 1947, however, all other principal demands showed important increases during the year. About three-fifths of all propane was reported for domestic or household consumption in both 1946 and 1947, and quantitatively the volume of sales rose from 310,040,000 gallons in 1946 to 503,448,000 in 1947--a gain of over 60 percent for this particular demand. Propane delivered to chemical plants for raw material more than doubled in quantity, increasing from 81,727,000 gallons in 1946 to 182,388,000 in 1947 and the later total represented more than a fifth of all propane requirements for the year. Manufactured-gas companies have increased their purchases of propane nearly five-fold since 1944 and the 1947 quantity of 77,110,000 gallons was 87 percent over the 1946 total of 41,199,000 gallons. Only small quantities of propane are used as fuel in internal-combustion engines, however, the demand rose from 7,605,000 gallons in 1946 to 12,585,000 in 1947. Propane has never been important as a synthetic rubber component and requirements dropped sharply from 19,631,000 gallons in 1946 to 4,558,000 in 1947. Industrial plants turned more to butane and butane-propane mixtures for fuel in 1947 as competitive demands for propane developed, and consequently their purchases of the latter gas declined from 91,033,000 gallons in 1946 to 83,108,000 in 1947--a 9-percent drop.

The quantities of butane-propane mixtures sold for various uses all increased noticeably in 1947 except the demand for internal-combustion-engine fuel, which dropped moderately. More than half of the butane-propane mixtures are reported for domestic fuel and this total rose from 403,141,000 gallons in 1946 to 584,998,000 in 1947--a gain of 45 percent. Chemical plants take about one-quarter of the butane-propane mixtures for raw material and their requirements have about tripled in volume since 1944. Butane-propane mixtures credited to chemical plants of 213,083,000 gallons in 1947 were 16 percent over the 1946 quantity of 183,813,000 gallons. Only small amounts of "mixtures" go into synthetic rubber, however, this demand increased from 2,336,000 gallons in 1946 to 9,244,000 in 1947. Manufactured-gas companies greatly increased their purchases of liquefied petroleum gases in 1947 and their demand for butane-propane mixtures expanded from 19,779,000 gallons in 1946 to 33,798,000 in 1947. The increase in volume for "mixtures" delivered to industrial plants for fuel was 28,592,000 gallons in 1947 compared with 19,982,000 in 1946. Most of the liquefied petroleum gases used as fuel in internal-combustion engines is reported under "butane-propane mixtures," however, the quantity declined from 82,520,000 gallons in 1946 to 77,529,000 in 1947, while substantial increases were indicated for both butane and propane. Stated in another way, butane-propane mixtures made up 87 percent of the "internal-combustion-engine" total in 1946 and only 78 percent in 1947.

Pertinent data regarding the distribution of liquefied petroleum gases by manufactured-gas companies and credited to the American Gas Association are as follows:

> "Liquefied petroleum gas, as of July 1, 1948, was being delivered through mains to 301,650 consumers in 419 communities by 188 companies in 39 states.
>
> Butane-air gas and propane-air with heating value ranging from 525 to 1,600 B.t.u. per cu.ft. was supplied 336 communities in 37 states.
>
> A mixture of undiluted butane and propane gas with heating value of 2,800 to 3,550 B.t.u per cu.ft. was supplied 22 communities

in Arizona, California, Nevada, New Jersey and New Mexico.

Undiluted propane gas with heating value of 2,515 to 2,550 B.t.u. per cu.ft. was supplied 61 communities in Iowa, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Carolina, North Dakota, Virginia, and Wisconsin."

E. T. Knudsen of the Los Angeles office of the Bureau of Mines is credited with the statistics covering sales of liquefied petroleum gases in the Pacific Coast marketing area (California, Oregon, Washington, Arizona, and Nevada). Deliveries of liquefied petroleum gases in these States increased from a revised total of 237,117,000 gallons in 1946 to 294,239,000 in 1947--a gain of 24 percent. The totals for the Pacific Coast represented about 14 percent of the national demand in 1946 and 13 percent in 1947. The market for liquefied petroleum gases in other areas of the country rose from a revised total of 1,467,145,000 gallons in 1946 to 1,915,558,000 in 1947--an expansion of over 30 percent in volume.

Average monthly refinery prices for commercial grades of liquefied petroleum gases are included in Platt's Oil Price Handbook for 1947 for the first time. An accompanying table shows these quotations for several important distributing centers.

Exports of liquefied petroleum gases did not repeat the unusual percentage gains realized in 1945 and 1946 as the 1947 total of 53,233,000 gallons was only 8 percent above the 1946 foreign demand of 49,091,000 gallons. Canada and Mexico received most of the shipments in the two years, however, a total of 45 foreign countries received liquefied petroleum gases from the United States in 1947 compared with 41 in 1946.

Table II. - Monthly average prices of liquefied petroleum gases FOB refineries in the United States, 1947 1/

(Cents per gallon)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Aver. for Year
New York Harbor:													
Commercial propane.....	6.00	6.00	6.13	6.50	6.50	6.50	6.50	6.50	6.50	6.54	7.50	7.83	6.58
Industrial propane.....	6.00	6.00	6.10	6.50	6.50	6.50	6.50	6.50	6.50	6.50	7.50	7.88	6.58
Commercial and/or Industrial butane.....	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	6.25	7.50	7.88	6.49
Philadelphia, Penna.:													
Commercial propane.....	6.00	6.00	6.02	6.50	6.50	6.50	6.50	6.50	6.50	6.50	7.50	7.75	6.56
Baltimore, Md.:													
Commercial propane.....	6.00	6.00	6.17	6.50	6.50	6.50	6.50	6.50	6.50	6.59	7.50	7.77	6.59
New Orleans, La.:													
Commercial propane.....	3.25	3.25	3.33	3.50	3.50	3.93	4.00	4.00	4.00	4.09	5.00	5.27	3.93
Hastings, W. Va.:													
Commercial propane.....	5.25	5.25	5.25	5.25	5.25	5.65	5.75	5.75	5.75	5.84	6.75	7.02	5.73
Commercial butane......	4.50	4.50	4.50	4.50	4.50	4.90	5.00	5.00	5.00	5.09	6.00	6.27	4.98
Toledo, Ohio:													
Commercial propane.....	5.50	5.50	5.50	5.50	5.77	6.00	6.00	6.00	6.00	6.02	6.62	7.25	5.97

1/ Platt's Oil Price Handbook.

Table III - Sales 1/ of liquefied petroleum gases by uses and regional distribution, 1946-47
(Thousands of gallons)

	BUTANE				PROPANE			
	1947 2/		1946 3/		1947 2/		1946 3/	
	Total	Percent of total	Total	Percent of total	Total	Percent of total	Total	Percent of total
Domestic:..............................	62,092	15.6	45,285	10.3	503,448	58.3	310,040	56.2
Pacific Coast area..................	1,420	0.4	384	0.1	57,915	6.7	45,286	8.2
All other areas.....................	60,672	15.2	44,901	10.2	445,533	51.6	264,754	48.0
Gas manufacturing:.....................	58,424	14.7	25,682	5.8	77,110	9.0	41,199	7.5
Pacific Coast area..................	-	-	-	-	11,043	1.3	3,848	0.7
All other areas.....................	58,424	14.7	25,682	5.8	66,067	7.7	37,351	6.8
Industrial fuel:.......................	61,901	15.5	48,100	10.9	83,108	9.6	91,033	16.5
Pacific Coast area..................	79	-	-	-	9,990	1.1	9,193	1.7
All other areas.....................	61,822	15.5	48,100	10.9	73,118	8.5	81,840	14.8
Synthetic rubber components:...........	187,733	47.1	271,925	61.6	4,558	0.5	19,631	3.6
Pacific Coast area..................	18,386	4.6	21,440	4.9	2,447	0.3	-	-
All other areas.....................	169,347	42.5	250,485	56.7	2,111	0.2	19,631	3.6
Chemical manufacturing:................	18,796	4.7	45,959	10.4	182,388	21.1	81,727	14.8
Pacific Coast area..................	10,112	2.5	9,462	2.1	29,108	3.4	14,815	2.7
All other areas.....................	8,684	2.2	36,497	8.3	153,280	17.7	66,912	12.1
Internal-combustion-engine fuel:.......	9,662	2.4	4,467	1.0	12,595	1.5	7,605	1.4
Pacific Coast area..................	-	-	-	-	5,008	0.6	2,676	0.5
All other areas.....................	9,662	2.4	4,467	1.0	7,587	0.9	4,929	0.9
All other uses:........................	27	-	-	-	479	-	15	-
Pacific Coast area..................	-	-	-	-	405	-	-	-
All other areas.....................	27	-	-	-	74	-	15	-
Total sales:...........................	398,635	100.0	441,418	100.0	863,686	100.0	551,250	100.0
Pacific Coast area..................	29,997	7.5	31,286	7.1	115,916	13.4	75,818	13.8
All other areas.....................	368,638	92.5	410,132	92.9	747,770	86.6	475,432	86.2
Percent of total l.p.g. sales..........	18.0	-	25.9	-	39.1	-	32.3	-

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1/ In continental United States only. 2/ Subject to revision. 3/ Revised.

Table III - Sales 1/ of liquefied petroleum gases by uses and regional distribution, 1946-47, Cont'd
(Thousands of gallons)

	BUTANE-PROPANE MIXTURES				TOTAL - ALL SALES			
	1947 2/		1946 3/		1947 2/		1946 3/	
	Total	Percent of total	Total	Percent of total	Total	Percent of total	Total	Percent of total
Domestic:..............................	584,998	61.7	403,141	56.6	1,150,538	52.1	758,466	44.5
Pacific Coast area......................	85,291	9.0	64,673	9.1	144,626	6.6	110,343	6.5
All other areas.........................	499,707	52.7	338,468	47.5	1,005,912	45.5	648,123	38.0
Gas manufacturing:......................	33,798	3.6	19,779	2.8	169,332	7.7	86,660	5.1
Pacific Coast area......................	15,056	1.6	15,746	2.2	26,099	1.2	19,594	1.2
All other areas.........................	18,742	2.0	4,033	0.6	143,233	6.5	67,066	3.9
Industrial fuel:........................	28,592	3.0	19,982	2.9	173,601	7.8	159,115	9.3
Pacific Coast area......................	10,215	1.1	11,015	1.6	20,284	0.9	20,208	1.2
All other areas.........................	18,377	1.9	8,967	1.3	153,317	6.9	138,907	8.1
Synthetic rubber components:............	9,244	1.0	2,336	0.3	201,535	9.1	293,892	17.3
Pacific Coast area......................	-	-	1,471	0.2	20,833	0.9	22,911	1.3
All other areas.........................	9,244	1.0	865	0.1	180,702	8.2	270,981	16.0
Chemical manufacturing:.................	213,083	22.5	183,813	25.8	414,267	18.8	311,499	18.3
Pacific Coast area......................	1,099	0.1	95	-	40,319	1.8	24,372	1.4
All other areas.........................	211,984	22.4	183,718	25.8	373,948	17.0	287,127	16.9
Internal-combustion-engine fuel:........	77,529	8.2	82,520	11.6	99,786	4.5	94,592	5.5
Pacific Coast area......................	36,433	3.9	36,993	5.2	41,441	1.9	39,669	2.3
All other areas.........................	41,096	4.3	45,527	6.4	58,345	2.6	54,923	3.2
All other uses:.........................	232	-	23	-	738	-	38	-
Pacific Coast area......................	232	-	20	-	637	-	20	-
All other areas.........................	-	-	3	-	101	-	18	-
Total sales:............................	947,476	100.0	711,594	100.0	2,209,797	100.0	1,704,262	100.0
Pacific Coast area......................	148,326	15.7	130,013	18.3	294,239	13.3	237,117	13.9
All other areas.........................	799,150	84.3	581,581	81.7	1,915,558	86.7	1,467,145	86.1
Percent of total l.p.g. sales...........	42.9	-	41.8	-	100.0	-	100.0	-

1/ In continental United States only. 2/ Subject to revision. 3/ Revised.

Table IV - Exports of Liquefied Petroleum Gases, 1943-47
(Thousands of gallons)1/

Countries of Destination	1943	1944	1945	1946	1947
Canada	4,499	7,507	15,044	30,379	31,591
Mexico	5,374	6,743	10,615	15,955	16,471
Bermuda	59	86	103	147	198
Brazil	-	-	63	289	1,570
United Kingdom	-	1	-	-	446
France	-	-	-	1,941	2,082
Republic of the Philippines	-	-	12	101	402
All other countries	130	220	222	279	473
Total	10,062	14,557	26,059	49,091	53,233

1/ Converted from "pounds" to "gallons" at 4.5 pounds per gallon.

Source: Bureau of the Census, United States Department of Commerce.

MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary — JAMES BOYD, Director

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MINERAL MARKET REPORT
M.M.S. NO. 1647

GYPSUM AND GYPSUM PRODUCTS - FINAL ANNUAL FIGURES FOR 1947

Production, imports, and value of sales of gypsum all established record highs in 1947. Mine output rose to 6,208,216 short tons, 10 percent over 1946; imports increased 48 percent to 2,157,049 short tons, and value of sales amounted to \$128,181,671 - 32 percent above 1946. The United States was the largest producer of crude gypsum, accounting for over 40 percent of the estimated world total.

Crude gypsum was mined from 63 operations of which 36 were open quarries, 19 underground mines, and 8 quarry-mine combinations. Fifteen of the 17 producing States increased production over 1946; in 2 states (Michigan and Virginia) production was lower. Michigan was the leading State, followed by New York, Texas, California, Iowa and Nevada.

The apparent consumption of gypsum for all purposes increased 21 percent over 1946. Prefabricated products accounted for about 43 percent of the total tonnage used, building plasters 29, uncalcined uses 25, and industrial uses 3 percent.

Throughout 1947 the gypsum industry has continued to modernize older and construct new plants in an effort to supply the urgent demands of the building industry. There were 211 active calcining units in operation during the year, of which 174 were kettle-type, 14 rotary kilns, and 23 other types. Ten companies operating 41 board machines during the year produced nearly 4 billion square feet of board (including lath wallboard, sheathing and laminated board), an average of 94 million square feet per machine per year.

The average value reported for crude gypsum mined in 1947 was \$2.66 (1946-\$2.21). Calcined gypsum value rose from \$7.02 in 1946 to \$7.72 in 1947.

Prepared by Lawrence G. Houk and M. G. Downey, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Gypsum products (make from domestic, imported, and by product crude gypsum) sold or used in the United States, 1946-47, by uses

Use	1946		1947		
	Short tons	Value	Short tons	Value	Percent change in tonnage
Uncalcined:					
Portland cement retarder........	1,135,853	$2,949,860	1,341,359	$4,445,877	+18
Agricultural gypsum..........	471,902	1,855,515	575,626	2,236,994	+22
Other uses 1/..............	33,524	300,414	32,696	329,235	-2
Total uncalcined uses	1,641,279	5,105,789	1,950,181	7,012,106	+19
Industrial:					
Plate-glass and terra-cotta plasters................	36,654	284,716	36,364	376,543	-1
Pottery plasters............	44,808	627,913	48,934	735,588	+9
Orthopedic and dental plasters	13,322	439,471	13,329	421,761	----
Other industrial uses 2/.....	112,394	1,808,888	108,599	1,929,883	-3
Total industrial uses......	207,178	3,160,988	207,226	3,463,775	----
Building:					
Cementitious:					
Plasters:					
Base-coat.................	1,507,115	16,038,863	1,724,888	18,788,100	+14
Sanded....................	113,983	864,579	128,849	1,110,294	+13
To mixing plants..........	15,553	121,857	17,503	154,763	+13
Gaging and molding........	165,061	2,230,931	174,337	2,379,019	+ 6
Prepared finishes.........	11,753	445,864	18,816	607,345	+60
Insulating and roof-deck...	70,956	623,844	93,812	2,038,018	+2
Other 3/..................	21,326	1,190,576			
Keene's cement............	32,476	482,717	44,470	798,753	+37
Total cementitious	1,938,223	22,049.231	2,202,675	25,876,292	+14
Prefabricated:					
Lath......................	865,682	18,550,334	1,290,083	32,199,949	4/ +48
Wallboard..................	1,517,035	43,699,483	1,698,671	53,116,504	4/ + 8
Sheathing board............	79,673	2,021,691	111,895	3,534,686	4/ +38
Laminated board............	22,837	792,560	1,877	202,683	4/ -92
Tile.......................	108,721	1,814,487	153,986	2,775,676	4/ +42
Total prefabricated	2,593,948	66,878,555	3,256,512	91,82[illegible],498	4/ +23
Total building uses	----	88,927,786	----	117,705,790	----
Grand total value	----	97,194,563	----	128,181,671	----

1/ Includes uncalcined gypsum sold for use as filler and rock dust, in brewer's fixe, color manufacture, and for unspecified uses.

2/ Includes statuary, industrial casting and molding plasters, dead-burned filler, granite polishing, and miscellaneous uses.

3/ Includes joint filler, patching and painter's plaster, and unclassified building plasters.

4/ Percent of change in square footage.

Crude gypsum mined in the United States, 1946-47, by States

State	1946			1947		
	Active mines	Short tons	Value	Active mines	Short tons	Value
Arizona	2	212,231	$456,361	3	23,980	$128,725
Arkansas	1			1	231,745	468,951
Kansas	2			2		
California	6	574,345	1,315,699	12	811,798	1,996,157
Colorado	3	199,895	474,704	3	205,979	644,583
Montana	2			2		
South Dakota....	1			1		
Wyoming	2			3	22,643	112,238
Iowa..............	5	560,094	1,172,500	4	656,982	1,677,217
Michigan	4	1,120,070	2,171,979	4	1,031,157	2,760,825
Nevada	3	490,253	1,164,083	7	526,972	1,377,143
New York	7	814,999	1,961,157	7	949,375	2,613,094
Ohio	2	584,755	1,482,269	2	589,808	1,837,846
Virginia	2			2		
Oklahoma	2	301,123	612,148	2	326,144	912,764
Utah	2			2		
Texas	6	771,633	1,630,929	6	831,633	2,000,341
	52	5,629,398	12,441,829	63	6,208,216	16,529,884

Calcined gypsum 1/ produced in the United States, 1946-47, by districts

District	1946		1947	
	Short tons	Value	Short tons	Value
New Hampshire, Massachusetts, and Connecticut	155,268	$1,228,340	181,646	$1,561,512
Eastern New York, New Jersey, Pennsylvania, Maryland, Georgia and Florida 2/.....................	623,375	4,862,620	1,027,684	9,143,770
Western New York	545,636	3,735,566	625,513	4,267,028
Ohio and Virginia	379,531	2,858,570	384,241	3,128,910
Michigan and Indiana	639,764	4,554,987	605,774	4,734,377
Iowa	443,966	3,066,319	530,472	4,000,575
Kansas and Oklahoma	216,003	1,654,360	266,308	2,115,216
Texas	518,587	3,291,439	547,350	3,803,464
Colorado, Wyoming, South Dakota, Montana and Utah	150,638	1,086,582	169,653	1,354,308
California, Nevada and Arizona 2/	496,344	2,934,177	672,277	4,591,658
	4,169,662	29,272,960	5,010,918	38,700,818

1/ Made from domestic, imported, and byproduct crude gypsum.
2/ No production from Arizona and Maryland in 1946.

Salient statistics of the gypsum industry in the United States, 1944-47

	1944	1945	1946	1947
Active establishments 1/ ...	77	75	80	93
Crude gypsum: 2/				
Mined .... short tons	3,761,234	3,811,723	5,629,398	6,208,216
Imported ...... do	342,462	508,762	1,457,140	2,157,049
Apparent supply do	4,103,696	4,320,485	7,086,538	8,365,265
Calcined gypsum produced: 3/				
Short tons	2,363,143	2,485,090	4,169,662	5,010,918
Value	13,841,399	14,473,566	29,272,960	38,700,818
Gypsum products sold: 3/				
Uncalcined uses:				
Short tons	1,056,276	1,147,797	1,641,279	1,950,181
Value	2,953,564	3,432,727	5,105,789	7,012,106
Industrial uses:				
Short tons	200,473	157,796	207,173	207,226
Value	2,550,649	2,326,363	3,160,988	3,463,775
Building uses:				
Value	50,196,006	54,389,504	88,927,786	117,705,790
Total value	55,700,219	60,148,594	97,194,563	128,181,671
Gypsum and gypsum products .				
Imported for consumption .	394,603	548,697	1,333,088	2,521,740
Exported	489,980	1,502,668	1,065,248	1,600,578

1/ Each mine, plant, or combination mine and plant is counted as 1 establishment.
2/ Excludes byproduct gypsum.
3/ Made from domestic, imported, and byproduct crude gypsum.

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MINERAL INDUSTRY SURVEYS

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FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

METAL MINING IN CALIFORNIA, 1947

FINAL ANNUAL FIGURES [1]

California lead production in 1947, continuing the upward trend begun in 1944 was 16 percent greater than in 1946 - only 8 percent below the record output of 1917 - and the value was the largest in the history of the State, according to the San Francisco Office of the Bureau of Mines, United States Department of the Interior. The output of silver was up 19 percent largely because of the higher price for the metal and the fact that its production was closely allied to the production of lead in the State. Gold production gained 21 percent principally due to the operation of more gold-producing properties, lode as well as placer. Expiration of the Premium-Price Plan for copper, lead and zinc on June 30, 1947, had an adverse effect on the production of copper and zinc, the outputs of both metals dropping far below those of 1946. The total value of gold, silver, copper, lead, and zinc recovered in 1947 was $21,704,640 - an increase of 16 percent from $18,788,664 in 1946. The value of lead increased 34 percent, silver 33 percent, gold 21 percent whereas zinc and copper each decreased 26 percent.

The value of the metal production herein reported has been calculated at the following prices (corresponding prices for 1946 are shown in parentheses): Gold $35 per fine ounce ($35); silver $0.905 per fine ounce ($0.808); copper $0.210 per pound ($0.162); lead $0.144 per pound ($0.109); and zinc $0.115 per pound ($0.122). The weighted average prices for base-metals in both years included premium payments made under the Premium Price Plan.

The principal producers of gold, silver, copper, lead, and zinc in California in 1947 were: Gold, the Natomas Co., Folsom district, Sacramento County; silver and lead, Anaconda Copper Mining Co., Darwin group, Coso district, Inyo County; copper, Pacific Mining Co., Newton Mine, Ione district, Amador County (ceased operation August 31, 1947); and zinc, Shawmut Copper Mining Co., Campo Seco district, Calaveras County (ceased operation October 10, 1947).

Prepared by Alfred L. Ransome, San Francisco Office, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

[1] The cooperation of the California Department of Natural Resources, Division of Mines, is acknowledged.

Mine production of gold, silver, copper, lead, and zinc
in California,
by months, in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January	34,975	186,018	253	969	450
February	34,029	180,475	212	1,078	521
March	32,874	164,042	243	1,395	674
April	42,537	167,640	354	1,286	909
May	40,541	147,123	334	969	797
June	36,025	146,539	303	841	736
July	37,663	92,474	273	613	501
August	34,827	99,475	263	633	317
September	35,017	114,548	111	752	306
October	34,764	83,237	41	505	102
November	34,134	113,770	10	544	77
December	34,029	102,101	10	495	25
Total: 1947	431,415	1,597,442	2,407	10,080	5,415
1946	356,824	1,322,830	4,240	9,923	6,877

Mine production of gold, silver, copper, lead, and zinc in California, 1947, by counties in terms of recovered metals

County	Mines producing 1/		Gold				Silver			
			Fine ounces		Total		Fine ounces		Total	
	Lode	Placer	Lode	Placer	Fine ounces	Value	Lode	Placer	Fine ounces	Value
Amador----------	8	11	2,016	2,708	4,724	$165,340	11,223	375	11,598	$10,496
Butte-----------	3	10	157	26,880	27,037	946,295	207	1,994	2,201	1,992
Calaveras-------	13	11	4,835	336	5,171	180,985	97,040	36	97,076	87,854
Colusa----------	1	---	6	---	6	210	3	---	3	3
El Dorado-------	13	12	385	2,609	2,994	104,790	1,644	395	2,039	1,845
Fresno----------	1	3	5	230	235	8,225	---	37	37	33
Humboldt--------	---	1	---	139	139	4,865	---	22	22	20
Inyo------------	41	---	1,974	---	1,974	69,090	1,235,998	---	1,235,998	1,118,578
Kern------------	16	6	6,154	74	6,228	217,980	7,671	15	7,686	6,956
Lassen----------	1	---	1	---	1	35	6	---	6	5
Los Angeles-----	---	4	---	48	48	1,680	---	6	6	5
Madera----------	---	4	---	197	197	6,895	---	57	57	52
Mariposa--------	15	5	5,705	658	6,363	222,705	1,848	85	1,933	1,749
Merced----------	---	3	---	16,422	16,422	574,770	---	1,505	1,505	1,362
Mono------------	2	---	41	---	41	1,435	7,323	---	7,323	6,627
Nevada----------	11	14	76,123	5,207	81,330	2,846,550	24,922	822	25,744	23,298
Placer----------	4	25	537	4,821	5,358	187,530	254	553	807	730
Plumas----------	4	7	422	124	546	19,110	551	19	570	516
Riverside-------	2	1	28	2	30	1,050	15	---	15	14
Sacramento------	---	14	---	113,560	113,560	3,974,600	---	6,203	6,203	5,614
San Bernardino--	24	2	2,081	2,328	4,409	154,315	103,477	400	103,877	94,009
San Diego-------	1	---	13	---	13	455	6	---	6	5
San Francisco---	---	1	---	4	4	140	---	---	---	---
San Joaquin and Shasta 2/	6	7	579	17,677	18,256	638,960	76,516	1,911	78,427	70,977
Sierra----------	12	10	12,821	442	13,263	464,205	2,449	52	2,501	2,263
Siskiyou and Stanislaus 2/--	9	24	753	38,388	39,141	1,369,935	172	4,171	4,343	3,931
Trinity---------	2	20	100	13,805	13,905	486,675	96	1,581	1,677	1,518
Tuolumne--------	19	5	4,125	107	4,232	148,120	2,005	10	2,015	1,824
Yuba------------	2	10	16	65,772	65,788	2,302,580	2	3,765	3,767	3,409
Total: 1947-	210	210	118,877	312,538	431,415	15,099,525	1,573,428	24,014	1,597,442	1,445,685
1946-	150	172	87,052	269,772	356,824	12,488,840	1,322,830	19,821	1,342,651	1,084,862

Mine production by counties, continued

County	Copper		Lead		Zinc		Total Value
	Pounds	Value	Pounds	Value	Pounds	Value	
Amador----------------------	1,674,000	$351,540	---	---	---	---	$527,376
Butte-----------------------	---	---	---	---	---	---	948,287
Calaveras-------------------	1,242,000	260,820	180,000	$25,920	4,700,000	$540,500	1,096,079
Colusa----------------------	---	---	---	---	---	---	213
El Dorado-------------------	112,000	23,520	4,000	576	12,000	1,380	132,111
Fresno----------------------	---	---	---	---	---	---	8,258
Humboldt--------------------	---	---	---	---	---	---	4,885
Inyo------------------------	232,000	48,720	17,980,000	2,589,120	1,404,000	161,460	3,986,968
Kern------------------------	---	---	---	---	---	---	224,936
Lassen----------------------	---	---	---	---	---	---	40
Los Angeles-----------------	---	---	---	---	---	---	1,685
Madera----------------------	---	---	---	---	---	---	6,947
Mariposa--------------------	4,000	840	---	---	---	---	225,294
Merced----------------------	---	---	---	---	---	---	576,132
Mono------------------------	18,000	3,780	34,000	4,896	---	---	16,738
Nevada----------------------	---	---	---	---	---	---	2,869,848
Placer----------------------	---	---	---	---	---	---	188,260
Plumas----------------------	28,000	5,880	---	---	---	---	25,506
Riverside-------------------	---	---	---	---	---	---	1,064
Sacramento------------------	---	---	---	---	---	---	3,980,214
San Bernardino--------------	92,000	19,320	316,000	45,504	1,300,000	149,500	462,648
San Diego-------------------	---	---	---	---	---	---	460
San Francisco---------------	---	---	---	---	---	---	140
San Joaquin and Shasta 2/-	1,396,000	293,160	1,634,000	235,296	3,414,000	392,610	1,631,003
Sierra----------------------	---	---	12,000	1,728	---	---	468,196
Siskiyou and Stanislaus 2/	---	---	---	---	---	---	1,373,866
Trinity---------------------	4,000	840	---	---	---	---	489,033
Tuolumne--------------------	12,000	2,520	---	---	---	---	152,464
Yuba------------------------	---	---	---	---	---	---	2,305,989
Total: 1947---------	4,814,000	1,010,940	20,160,000	2,903,040	10,830,000	1,245,450	21,704,640
1946---------	8,480,000	1,373,760	19,846,000	2,163,214	13,754,000	1,677,988	18,788,664

1/ Excludes itinerant prospectors, snipers, high-graders, and others who gave no evidence of legal right to property.
2/ Combined to avoid disclosure of individual output.

Ore sold or treated in California in 1947, with content in terms of recovered metals

Source	Ore 1/ (short tons)	Gold (fine ounces)	Silver (fine ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
Dry and siliceous gold ore-------	438,812	111,164	44,272	172,000	16,000	12,000
Dry and siliceous gold-silver ore	3,053	1,315	48,738	900	2,700	---
Dry and siliceous silver ore-----	7,927	89	40,241	32,400	595,400	---
Copper ore---------------------	15,993	2/371	2/19,811	2/5/1,888,200	2/2,800	---
Lead ore-----------------------	87,913	1,752	1,213,277	165,600	17,611,500	1,315,400
Zinc ore-----------------------	3/49,651	4/3,665	4/136,144	4/1,307,900	4/233,200	4/5,997,900
Zinc-copper ore----------------	35,745	138	21,863	1,053,700	28,000	1,038,000
Zinc-lead ore------------------	9,695	383	49,082	193,300	1,670,400	2,466,700
Total lode mines: 1947-----	3/648,789	2/4/118,877	2/4/1,573,428	2/4/5/4,814,000	2/4/20,160,000	4/10,830,000
1946-----	3/627,767	2/4/87,052	2/4/1,322,830	2/4/8,480,000	19,846,000	13,754,000

1/Includes 20,565 tons of old tailings in 1947, and 73,203 tons in 1946.
2/Includes metal recovered from pyritic ore (residue).
3/Excludes tungsten ore.
4/ Includes metal recovered from tungsten ore.
5/ Includes 8,800 pounds from precipitates.

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MINERAL MARKET REPORTS
M.M.S. NO. 1649

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

ASPHALT SALES INCREASE 15 PERCENT IN 1947

Domestic demand for petroleum asphalt was 9 percent higher in 1947, than in 1946, and export demand considerably larger, so that total demand, domestic and foreign, increased 10 percent in 1947 over 1946, according to the Bureau of Mines, Department of the Interior. To meet the greater demand, petroleum refineries of the United States enlarged their output 10 percent from 1946 to 1947, and more asphalt was imported. Stocks, however, were 4 percent higher at the end of 1947, than at the beginning of the year. Refinery sales to domestic consumers increased 15 percent in 1947 over 1946.

Petroleum refineries in the United States in 1947 produced 8,961,100 short tons of asphalt; received 486,600 tons by transfers, imports, purchases, and blending of other products; increased their stocks from 702,000 tons at the beginning of the year to 731,200 tons at the end of the year; consumed, transferred, exported, and lost in refining 683,000 tons; and sold to domestic consumers 8,735,500 tons. In 1946, they produced 8,165,600 tons; received from other sources 493,100 tons; increased their stocks during the year from 692,700 tons to 702,000 tons; consumed, transferred, exported, and lost in refining 1,035,100 tons; and sold to domestic consumers 7,614,300 tons.

Of the total petroleum asphalt sold to domestic consumers, 22 percent in 1947 was manufactured from foreign petroleum (imported from Venezuela, Colombia, and Mexico), compared with 20 percent in 1946. Ninety-eight percent of the asphalt made from foreign petroleum was manufactured in refineries of the East Coast of the United States.

Highway and street construction used (in the form of paving asphalt, paving flux, cut-back asphalts, and asphalt emulsions) 62 percent of the total asphalt sold to domestic consumers by petroleum refineries in 1947, compared with 60 percent in 1946. Although street and highway surfacing and maintenance was apparently 40 percent higher in 1947 than in 1946, sales of paving asphalt for high type surfacing increased 19 percent in tonnage; and sales of cut-back asphalts were 18 percent higher in 1947 than in 1946. If sales of asphalt emulsions by secondary manufacturers are added to refinery sales, emulsion sales increased 22 percent in quantity--from 80,777,861 gallons (342,831 short tons) in 1946, to 99,297,912 gallons (421,433 tons) in 1947--and increased 8 percent in value--from $7,878,128 in 1946, to $8,510,361 in 1947.

Prepared by A. H. Redfield, International Petroleum Section, Petroleum Economics Branch.

Roofing manufacture made the second-largest demand for asphalt, absorbing 34 percent of the total sales to domestic consumers in 1946, and 32 percent in 1947. Sales of roofing asphalt and roofing flux combined increased 10 percent from 1946 to 1947.

Reported sales of road oil increased 38 percent in quantity and 94 percent in value from 1946 to 1947. They totaled 5,053,000 barrels valued at $8,299,000 in 1946, and 6,958,000 barrels valued at $17,235,000 in 1947.

Bituminous rock shared in the increased demand which raised sales of paving asphalt. Its sales increased from 777,467 tons valued at $2,861,591 in 1946, to 1,004,740 tons valued at $3,756,071 in 1947.

Gilsonite, however, was in slightly less demand in 1947, than in 1946. Sales by producers in northeastern Utah decreased from 68,407 short tons valued at $1,400,229 in 1946, to 67,165 tons valued at $1,746,228 in 1947.

Imports of petroleum asphalt totaled 205,873 short tons valued at $1,692,392 in 1947, compared with 122,833 tons valued at $771,188 in 1946. The Netherlands West Indies were virtually the sole source of these imports in both years. Imports of natural asphalt, chiefly of lake asphalt from Trinidad and grahamite from Cuba, increased from 4,449 short tons valued at $92,419 in 1946, to 5,802 tons valued at $242,526 in 1947.

Exports of petroleum asphalt amounted to 555,949 short tons valued at $14,207,963 in 1947, compared with 395,920 tons valued at $8,707,859 in 1946. Two-thirds of these exports in both years were shipped to Europe.

Exports of natural asphalt, unmanufactured, decreased from 26,588 tons valued at $974,404 in 1946, to 23,902 tons valued at $1,065,386 in 1947. Europe received 81 percent of these exports in 1946 and 77 percent in 1947.

Asphalt and asphaltic material(exclusive of road oil)sold at petroleum refineries to domestic consumers in the United States in 1947,by varieties.
(Short Tons)

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	East Coast	Appalachian	Indiana, Illinois Kentucky,	Oklahoma Kansas Missouri	Texas	Louisiana and Arkansas	Rocky Mountain	California	Total short Tons	Total Value
Solid and semisolid products of less than 200 penetration:										
Asphalt for—										
Paving....................	693,415	98,334	370,945	63,249	287,731	395,383	86,500	385,177	2,380,734	$ 34,796,131
Roofing...................	817,716	190,306	282,519	137,264	88,365	229,078	2,858	126,270	1,874,376	28,138,800
Waterproofing.............	37,599	1,196	22,607	12,496	5,148	1,168	2,436	21,646	104,296	1,862,372
Blending with rubber.......	24,208	1,391	1,026	1,866	572	----	807	2,243	32,113	509,012
Briquetting...............	17,707	206	63,674	90,711	1,606	----	19,248	2,121	195,273	2,633,121
Mastic and mastic cake.....	2,940	224	8	----	1,557	----	62	353	5,144	107,904
Pipe coatings.............	5,626	1,818	3,339	1,946	6,526	184	168	14,697	34,304	655,736
Moulding compounds.........	15,833	1,625	28,284	2,541	19,657	----	96	8,709	76,745	1,220,009
Miscellaneous uses.........	86,444	966	59,805	55,014	298	51,921	5,074	32,017	291,539	4,921,100
	1,701,488	296,066	832,207	365,087	411,460	677,734	117,249	593,233	4,994,524	$ 74,844,185
Semisolid and liquid products of more than 200 penetration:										
Flux for --										
Paving....................	33,417	1,082	28,695	19,736	62,924	81,658	24,658	90,608	342,778	4,242,946
Roofing...................	72,838	249	343,800	93,726	105,385	61,764	8,857	274,119	960,738	11,752,573
Waterproofing.............	3,410	----	----	----	----	----	----	----	3,410	57,588
Mastic....................	----	----	----	2,448	----	----	----	----	2,448	40,881
Cut-back asphalts --										
Rapid-curing..............	323,755	15,549	138,642	56,227	154,924	90,164	70,430	122,122	971,813	16,060,604
Medium-curing.............	281,945	61,880	253,313	200,032	54,333	69,177	117,754	235,884	1,274,318	17,978,718
Emulsified asphalts and Fluxes.	6,204	2,486	----	401	13,166	82	6,841	26,228	55,408	876,070
Paints,enamels,japans,lacquers.	14,115	29,098	13,337	39	2,232	----	13	----	58,834	1,091,218
Other liquid products........	----	----	23,581	6,321	11,013	4,444	21,959	3,897	71,215	924,673
	735,684	110,344	801,368	378,930	403,977	307,289	250,512	752,858	3,740,962	$53,025,271
Total short tons............	2,437,172	406,410	1,633,575	744,017	815,437	985,023	367,761	1,346,091	8,735,486	
Total value.................	40,820,790	6,610,856	24,069,882	9,755,176	11,361,221	13,389,582	4,805,649	17,056,300		$127,869,456

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FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

For release OCTOBER 5, 1948

MINERAL MARKET REPORTS
MMS NO. 1650

COPPER IN 1947

Improved labor-management relations, the general absence of strikes, such as plagued 1946, and the continued high rate of domestic consumption, featured the copper industry in 1947, according to the Bureau of Mines, United States Department of the Interior. Mine output rose 39 percent, and smelter and refinery outputs from domestic ores, 44 and 57 percent, respectively. Contributory factors in the production gains were the highest annual price since 1918 and the slight improvement in over-all mine labor supply.

New supplies of copper made available fell short of filling all needs as consumption continued at virtually record peacetime levels. Government stocks were inadequate to continue as a major source of supplies as in 1946, and increased production from domestic mines in 1947 merely offset in part the drop in the Government's contribution. Total imports continued at approximately the sharply reduced rate of 1946. The shortage of dollars in principal foreign markets and export controls here held foreign purchases far below requirements for the metal. Exports of metallic copper, nonetheless, doubled in 1947, but were less than one-half the annual average for 1938-40.

The price situation was confused during the first half of 1947, as explained in detail later in this report. The several sharp advances of the British Ministry of Supply in its maximum prices for copper, accompanied by gains in United States' export prices, followed by rises in the domestic market (the excess of export prices over the domestic market continuing throughout the year and exceeding 2 cents a pound in April), and the advance of 52 percent in the average annual domestic price for the year, featured 1947 prices. The excise tax of 4 cents a pound on copper imported into the United States was recessed by a bill signed by the President in April, effective April 30, 1947 through March 31, 1949. At the general trade conference at Geneva, concluded October 20, the tax on copper was cut 50 percent. This cut, of course, will be ineffective until the end of the tax recess. In May producers followed the Reconstruction Finance Corp. in raising their prices to 21.5 cents a pound for electrolytic copper in the Connecticut Valley. Efforts to extend the Premium Price Plan beyond June 30, 1947 were ended unsuccessfully by Presidential veto on August 8. The end of premiums was expected to have little effect on production because the price had risen before June 30 to a point where only a very small proportion of the output was entitled to any premium benefits.

Prepared by Helena M. Meyer and A. J. McDermid, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Imports of copper in crude and refined form in 1947 continued at about the reduced level of 1946, which was about one-half of the 1944-45 rate. The drop has been chiefly in the refined classification which assumed great importance during the war. Total unmanufactured imports were 5 percent above 1946. All imports were affected adversely by the period of uncertainty attending legislative deliberations in connection with the removal of the excise tax, already mentioned as recessed for about 2 years from April 30. Export of refined copper, which in 1946 resumed its prewar place as the most important copper class, almost trebled in 1947, and was chiefly responsible for the approximate doubling of exports for the metallic group.

Stocks of refined copper at refineries fell 37 percent in 1947 and of blister and copper in process of refining at smelters and refineries, declined 16 percent; total producers' inventories were the smallest since the end of 1928.

Copper trading on the Commodity Exchange was resumed July 15 after a 6-years' suspension.

Salient statistics of the copper industry in the United States, 1945-47, in short tons

	1945	1946	1947
New copper produced-			
From domestic ores, as reported by-			
Mines	772,894	608,737	847,563
Ore produced:			
Copper ore 1/	77,472,983	62,232,342	87,865,048
Average yield of copper--------percent-	.93	.91	.90
Smelters	782,726	599,656	862,872
Refineries	775,738	578,429	909,213
From foreign ores, matte, etc., refinery reports	332,861	300,233	250,757
Total new refined, domestic and foreign	1,108,599	878,662	1,159,970
Secondary copper recovered from old scrap only	497,095	406,453	2/ 434,000
Imports (unmanufactured) 3/	853,196	393,275	413,890
Refined 3/	531,367	154,371	149,478
Exports of metallic copper 4/	132,555	97,475	196,999
Refined (ingots, bars, rods, etc.)	53,572	5/ 52,629	5/ 147,642
Stocks at end of year	461,000	350,000	273,000
Refined copper	130,000	96,000	60,000
Blister and materials in solution	331,000	254,000	213,000
Withdrawals from total supply on domestic account:			
Total new copper	1,415,000	1,391,000	1,286,000
Price, average 6/-----------cents per pound-	11.8	14.4	20.9
World smelter production, new copper	7/2,425,000	7/2,023,000	7/2,400,000+

1/ Includes old tailings.
2/ Preliminary figures.
3/ Data include copper imported for immediate consumption plus material entering country under bond.
4/ Total exports of copper, exclusive of ore, concentrates, composition metal, and unrefined copper. Exclusive also of "Other manufactures of copper," for which figures of quantity are not recorded.
5/ Excludes rods.
6/ Exclusive of bonus payments of the Office of Metals Reserve.
7/ Estimated.

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Mine Production

Most of the chief copper-producing States contributed to the increased United States output in 1947, Utah, Arizona, New Mexico, Michigan and Nevada showing gains of 133, 27, 20, 12, and 2 percent, respectively. Montana's output, on the other hand, declined for the fifth successive year, falling 1 percent, against the general trend.

Mine production of recoverable copper in the United States, 1943-47, by States, in short tons

State	1943	1944	1945	1946	1947
Alaska	27	2	5	2	12
Arizona	403,181	358,303	287,203	289,223	366,218
California	8,762	12,721	6,473	4,240	2,407
Colorado	1,028	1,048	1,485	1,754	2,150
Idaho	2,324	1,688	1,548	1,038	1,640
Michigan	46,764	42,421	30,401	21,663	24,184
Missouri	1,340	3,302	3,399	1,857	1,760
Montana	134,525	118,190	88,506	58,481	57,900
Nevada	71,068	61,232	52,595	48,616	49,603
New Mexico	76,163	69,730	56,571	50,191	60,205
North Carolina	(1)	(1)	------	------	------
Oregon	6	3	1	7	14
Pennsylvania	(1)	(1)	(2)	(2)	(2)
South Carolina	(3)	------	------	------	------
South Dakota	------	1	------	------	------
Tennessee	1/13,855	1/12,860	2/12,385	2/12,850	2/12,686
Texas	81	115	55	3	6
Utah	323,989	282,575	226,376	114,284	266,533
Vermont	290	1,898	(2)	(2)	(2)
Virginia	100	291	70	------	5
Washington	7,315	6,169	5,821	4,527	2,240
Wyoming	------	------	------	1	------
	1,090,818	972,549	772,894	608,737	847,563

1/ North Carolina and Pennsylvania included under Tennessee. Bureau of Mines not at liberty to publish separate figures.

2/ Pennsylvania and Vermont included under Tennessee. Bureau of Mines not at liberty to publish separate figures.

3/ Less than 1 ton.

Refinery Production

Total refinery output from domestic and foreign primary crude materials gained 32 percent in 1947. Production from scrap at primary plants rose 155 percent.

Primary and secondary copper produced by regular refining plants in the United States and imported, 1945-47, in short tons

	1945	1946	1947
Primary:			
Domestic: 1/			
Electrolytic 2/	669,705	475,571	805,718
Lake 2/	29,995	21,567	23,998
Casting	76,038	81,291	79,497
	775,738	578,429	909,213
Foreign: 1/			
Electrolytic	298,128	300,233	250,757
Casting and best select	34,733	-------	-------
Refinery production of new copper	1,108,599	878,662	1,159,970
Imports of refined copper (General)	531,367	154,371	149,478
Total new refined copper made available	1,639,966	1,033,033	1,309,448
Secondary:			
Electrolytic 3/	4/84,044	4/97,615	4/249,560
Casting	12,618	7,957	19,525
	96,662	105,572	269,085
Grand total	1,736,628	1,138,605	1,578,533

1/ The separation of refined copper into metal of domestic and foreign origin is only approximate, as an accurate separation of the amounts at this stage of manufacture is not possible.

2/ Some copper from Michigan is electrolytically refined at an Eastern refinery and is included as electrolytic copper.

3/ Includes some secondary Lake copper.

4/ Copper from scrap at Lake refineries included under "casting" copper in 1945-47. Includes copper reported from foreign scrap in 1945-47.

In addition to their output of metallic copper the regular refining companies produced bluestone (hydrous copper sulfate) having a copper content of 6,161 short tons as compared with 5,070 tons in 1946. Other companies reported 16,115 and 26,886 tons, respectively, or totals for the two types of producers of 22,276 and 31,956 tons, respectively.

Secondary Copper

Final figures covering copper produced from scrap in 1947 are not yet available but preliminary data are given in the following table.

Secondary copper produced in the United States,
1943-47, in short tons

	1943	1944	1945	1946	1947 1/
Copper recovered as unalloyed copper	137,883	102,135	112,856	136,909	293,000
Copper recovered in alloys 2/	948,164	848,807	893,660	666,637	604,000
Total secondary copper	1,086,047	950,942	1,006,516	803,546	897,000
From new scrap	658,526	494,232	509,421	397,093	463,000
From old scrap	427,521	456,710	497,095	406,453	434,000

1/ Preliminary figures.
2/ Includes copper in chemicals, as follows: 1943, 13,019; 1944, 13,357; 1945, 18,666; 1946, 19,192; 1947, not separately available.

Consumption

The usual calculation of apparent consumption of new copper indicates that there was a drop of 8 percent in 1947 as compared with 1946. Production of scrap at primary refineries gained 163,513 tons in 1947, and some of this output from scrap doubtless is included in exports of refined copper, making a deduction without a corresponding addition to supplies. Actual consumption of new copper is believed to have been as large in 1947 as in 1946, and doubtless it would have been greater had more copper been available for use.

New refined copper withdrawn from total year's supply
on domestic account, 1945-47, in short tons

	1945	1946	1947
Total supply of new copper	1,639,966	1,033,033	1,309,448
Stocks at beginning of year	81,000	130,000	96,000
Total available supply	1,720,966	1,163,033	1,405,448
Copper exported 1/	48,563	52,629	147,642
Stocks at end of year	130,000	96,000	60,000
	178,563	148,629	207,642
Withdrawn on domestic account 2/	1,415,000	1,391,000	1,286,000

1/ Includes refined copper in ingots, bars, or other forms.
2/ Adjusted for Office of Metals Reserve stock changes.

Preliminary figures showing reported consumption of refined copper, regardless of whether from primary or secondary materials were published July 20, 1948 in Copper Scrap Consumers Reports (28, 29 and 30).

Refined copper consumed in 1945-47, in short tons

Item	1945	1946	1947 1/
Cathodes	258,719	2/119,196	66,979
Wire bars	562,404	2/541,063	827,203
Ingots and ingot bars	275,944	2/225,101	138,679
Cakes and slabs	163,023	188,000	226,829
Billets	108,985	2/103,699	151,854
Other	10,197	9,950	408
	1,379,272	2/1,187,009	1,411,952

1/ Preliminary figures. All types of consumers were covered in the first quarter of 1947 and all types except foundries in the last three quarters. Foundries consumed 46,007 tons of refined copper in 1945 and 27,549 tons in 1946.
2/ Revised figures.

Stocks

Stocks of copper at primary smelting and refining plants in the United States at end of year, 1943-47, in short tons

Year	Refined copper	Blister and materials in process of refining 1/
1943	68,500	241,000
1944	81,000	311,000
1945	130,000	331,000
1946	96,000	254,000
1947	60,000	213,000

1/ Includes copper in transit from smelters in the United States to refineries therein.

At the end of 1947 the Office of Metals Reserve held 9,986 tons of electrolytic and fire-refined copper in cathodes, shapes, and in process copper, a decrease of 89 percent from the 92,758 tons at the beginning of the year. The foregoing stocks are on an ownership basis and therefore duplicate, in part, stocks of refined and in process copper reported by the refineries, which are on a physical-plant basis

Fabricators held 423,432 tons of refined copper (including in process metal and primary fabricated shapes) at the end of 1947, according to the United States Copper Association, or a gain of 4 percent over inventories at the beginning of the year. The feature of fabricators' stocks, however, was the drop to considerably less than one-third in unfilled orders as compared with stocks. The deficiency of stocks compared with booked orders was 104,922 tons at the end of 1947 compared with 344,702 tons 12 months earlier.

Prices

Domestic copper prices passed through more than one period of confusion after the ceiling limitation was discarded in November 1946. The immediate reaction to the abandonment of ceilings was a jump in prices from 14.375 to 17.5 cents a pound for electrolytic copper delivered Connecticut Valley; the price was 19.5 cents a pound when 1946 ended. Late in 1946 and in the early weeks of 1947 the British Ministry of Supply announced several sharp advances in maximum prices for the metal, each gain marking a continuation of higher levels for British prices than for domestic copper either in home or in export markets. When the Reconstruction Finance Corporation began to pay the excise tax on copper, it announced late in February a price of 21.5 cents a pound, Connecticut Valley. At that time the industry was operating under a dual system calling for 1 to 2 cents less than the announced RFC price. During March all factors moved to the 21.5-cent level. The passage of a bill suspending the excise tax on copper from April 30, 1947, to March 31, 1949, began another period of confusion and thereafter the first sale of foreign copper in the Connecticut Valley was at the equivalent of about 24 cents a pound, or close to the prevailing export price. Dual prices prevailed for domestic and foreign copper in the Connecticut Valley throughout May. The gap in prices closed thereafter as the Connecticut Valley price became steady at about 21.5 cents a pound with the export price settled at slightly in excess thereof. Throughout the year export prices were in excess of those in the United States' market. The average price for electrolytic copper, f.o.b. refinery, in 1947 was 20.958 cents a pound compared with 13.820 cents in 1946, whereas the export prices f.o.b. refinery were 21.624 and 14.791 cents, respectively. The estimated average weighted price for copper delivered, f.o.b. refinery and including allowances for premiums paid for overquota production, was 21.0 cents a pound in 1947 compared with 16.2 cents in 1946. Exclusive of bonuses the prices were 20.9 and 14.4 cents, respectively.

A bill extending the Premium Price Plan beyond June 30, 1947 was vetoed by the President on August 8. A ten-percent increase in freight rates, allowed by the Interstate Commerce Commission, caused a reduction in the f.o.b. refinery price for copper.

Foreign Trade

Figures on imports and exports, compiled from records of the Department of Commerce, are shown in the following tables.

Copper (unmanufactured) imported into the United States, 1947, in short tons 1/

Country	Ore (copper content)	Concentrates (copper content)	Regulus, black or coarse copper and cement (copper content)	Unrefined black blister and converter copper in pigs or converter bars	Refined in ingots, plates, or bars	Old and scrap copper fit only for remanufacture and scale and clippings
Australia--------	2	320	------	------	-----	196
Bolivia----------	337	6,415	------	------	-----	------
Canada-----------	29	18,468	2,126	28	1,180	4,651
Chile------------	6,586	13,072	321	59,885	143,006	250
Cuba-------------	50	14,848	------	------	-----	55
Czechoslovakia--	-----	------	------	1,096	-----	------
Ecuador----------	-----	132	58	------	-----	------
Japan------------	-----	------	------	------	3,226	------
Mexico-----------	5,447	4,158	1,763	64,410	66	62
Newfoundland and Labrador--------	-----	3,922	------	------	-----	42
Peru-------------	387	7,326	906	21,978	2,000	------
Philippines, Republic of----	-----	2,130	------	------	-----	55
Turkey-----------	-----	------	------	1,933	-----	------
Union of South Africa----------	1,658	65	49	7,903	-----	91
Yugoslavia-------	-----	172	------	10,145	-----	------
Other countries-	169	165	------	------	-----	551
	14,665	71,193	5,223	167,378	149,478	5,953

1/ Data include copper imported for immediate consumption plus material entering the country under bond.

Copper exported from the United States in 1947, by countries, in short tons

Country	Ore, concentrates, composition metal and unrefined copper (copper content)	Refined in bars, ingots, etc.	Old and scrap	Pipes and tubes	Plates and sheets	Rods	Wire (bare)	Insulated wire and cable
Argentina	-------	5,043	-------	337	159	1	291	1,970
Australia	-------	954	-------	1	180	2	6	81
Belgium and Luxembourg	-------	3,919	-------	32	3	----	2	75
Brazil	1	601	-------	392	707	145	50	621
Canada	2	84	92	790	701	113	799	2,956
China	-------	647	-------	32	265	23	480	1,290
Denmark	-------	635	-------	156	-----	840	224	60
France	-------	6,747	46	(1)	1	----	86	765
India and Dependencies	-------	11,083	208	55	3	----	16	84
Italy	-------	7,646	22	----	-----	----	3,826	1
Mexico	4	59	-------	649	306	78	178	1,498
Netherlands	-------	10,283	-------	151	34	849	28	223
Norway	-------	700	-------	23	77	----	63	36
Poland and Danzig	-------	2,475	-------	7	-----	----	170	164
Sweden	1	9,073	-------	380	32	----	6	552
Switzerland	-------	8,329	27	53	-----	----	(1)	61
U. S. S. R.	-------	------	-------	1	-----	----	116	678
United Kingdom	105	70,855	16	57	54	----	(1)	24
Other	2	8,509	558	1,991	1,852	365	4,856	14,155
	115	147,642	969	5,107	4,374	2,416	11,197	25,294

1/ Less than one ton.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

SEPTEMBER 1948

MINERAL MARKET REPORT
M.M.S. NO. 1651

THE [illegible] OF THE
[illegible] 1948
[illegible]

DISTRIBUTION

OF

PENNSYLVANIA ANTHRACITE

FOR THE

COAL YEAR APRIL 1, 1947 TO MARCH 31, 1948

* * * * * * * * *

Anthracite and Coke Section, Coal Economics Branch, Economics and Statistics Division, United States Bureau of Mines.

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INTRODUCTION

Pennsylvania anthracite as discussed in this report is defined as that coal produced in the Lehigh, Schuylkill, and Wyoming regions of northeastern Pennsylvania. The coal fields are located in the following ten counties; Carbon, Columbia, Dauphin, Lackawanna, Lebanon, Luzerne, Northumberland, Schuylkill, Susquehanna and Wayne. Coal produced in Sullivan County is classified officially as semi-anthracite and is not included. The distribution data contained in this report cover approximately 100 percent of total shipments made during the period, April 1, 1947 to March 31, 1948. This accomplishment was made possible only by the splendid cooperation of the entire industry. Producers, wholesalers, and dock-operators, who voluntarily submitted to the Bureau of Mines detailed distribution information on their shipments of Pennsylvania anthracite, are to be congratulated for reporting so completely. As is customary in all canvasses conducted by the Bureau, individual company reports are held confidential. For that reason, in publishing final statistics on distribution, the totals shown for each city represent shipments made by 3 or more shippers. Of the 363 cities appearing on the questionnaire, shipments made to 8 have been included under "All other cities" in the states in which they are located since shipments were reported to them by less than 3 companies.

The report form used in obtaining the distribution data for the 1947-48 coal year was so designed as to completely eliminate duplications in tonnages reported shipped. Each producer was requested to furnish information on direct shipments made to final destinations, on sales to consumers within the producing region, on coal sold to over-the-road-truckers, and separately, in aggregate size totals only, all tonnages shipped to, or for, the account of other producers or wholesalers. Producers, wholesalers, and dock-operators purchasing coal were requested, in turn, to report the final destinations on all tonnages so obtained. As a final step, all reports showing purchases were checked against those of the producing companies and, in cases where duplicate reporting was discovered, the companies involved were contacted immediately for further information.

SUMMARY

Reported shipments of anthracite for the 1947-48 coal year totaled 55,362,344 net tons, while commercial production for the year is estimated by the Anthracite Committee at approximately 54,500,000. The difference between estimated production and reported shipments is due to the fact that several hundred thousand tons of dredge coal (not included in Committee statistics on production) was reported in such manner that it was impracticable to remove it from the distribution data. In addition, large quantities of coal (principally Buckwheat No. 1) held in stock on April 1, 1947 moved to market during the summer months.

As shown in figure 1, page 5, 84.8 percent of shipments was destined to points within the United States. As indicated in figure 2, 85 percent of the tonnage was shipped originally from the mine by rail and 15 percent by truck. Of the rail tonnage, however, an undetermined amount reached the final consumer by tidewater or lake. The increase in the percentage shown for truck over that for 1946-47 is entirely due to the fact that truck tonnages reported for Pennsylvania increased from 6,696,491 tons in the 1946-47 coal year to 7,434,972 tons in the 1947-48 coal year. It should be noted that most of the increase occurred in sizes Buckwheat No. 4 and smaller and that the large increase shown in the totals for those sizes is attributable largely to the inclusion of the dredge coal previously mentioned.

As indicated in figure 1, the Middle Atlantic States obtained 70.3 percent of total reported shipments as compared to the 71.6 percent received during the 1946-47 coal year, and the New England States received 8.5 percent as against 9.6 percent during 1946-47.

Shipments to the South Atlantic States decreased from 3.1 percent in 1946-47 to 2.6 percent of total shipments reported for the 1947-48 year. Exports to countries other than Canada reached an all-time peak during the year and aggregated 7.2 percent of the total. Of these exports, all but approximately 100,000 tons were shipped to European countries.

Shipments to Canada declined from 4,582,567 net tons during the 1946-47 coal year to 4,423,721 tons in 1947-48. While exports of Buckwheat No. 1 to Canada showed an increase, the overall decrease was due to a drop in the shipment of Egg, Chestnut, and Rice sizes to that country. According to records of the Department of Commerce, exports of anthracite to countries other than Canada totaled 4,010,330 net tons for the 1947-48 coal year, as compared to 2,329,019 for the 1946-47 year. From information made available by shippers and representatives of the purchasing countries, an estimated breakdown of these exports, by sizes, is shown in table 1, page 3. From these data it would appear that the large increase in exports to Europe occurred principally in Egg, Pea, Buckwheat No. 1, and Rice sizes which, during the summer months of 1947, were in free supply in this country.

Figure 3, page 6, charts the percentage distribution of anthracite, by size groups, for the coal years in the period, April 1, 1943 to March 31, 1948. It is interesting to note that reported shipments of Domestic sizes have declined from 60.5 percent of total shipments in the 1943-44 coal year to 57.1 percent in 1947-48. Buckwheat No. 1 at 13.0 percent and Rice at 7.7 percent of the total compare favorably with the percentages reported for the 1946-47 coal year, while Barley and smaller have increased to 22.2 percent of 1947-48 total shipments.

Figure 4, showing percentage distribution of Pennsylvania anthracite for selected years, by geographical areas, is included on page 7 of this report to illustrate the significant historical changes that have occurred in the pattern of anthracite distribution.

Figure 5, page 8, indicates graphically the shipment of anthracite into the primary market area, by sizes, in percent of total annual shipments for the period, April 1942 to March 1948.

It should be pointed out that, since reporting companies were not requested to furnish information as to city of destination on trucked coal during the 1945-46, 1946-47, and 1947-48 coal years, data appearing in this report and in M.M.S. Nos. 1454 and 1552 for cities which normally receive all, or part, of total annual requirements by truck, are not comparable with those published in the SFD series covering the coal years from April 1, 1942 to March 31, 1945. In making comparisons of annual shipments to particular destinations proper weight should be given to the difference in production for the years under study, and it should also be remembered that in the SFD series of distribution reports all calculations on method of movement were based upon shipments to retail dealers only whereas figures in this report, and in M.M.S. Nos. 1454 and 1552, are predicated upon shipments to all types of consumers.

Additional copies of this publication may be obtained by writing to the United States Bureau of Mines, United States Department of the Interior, Washington 25, D. C.

This publication was prepared by J. A. Vaughan, B. M. Reynolds, and J. A. Corgan, Chief, Anthracite and Coke Section, under the supervision of T. W. Hunter, Chief, Coal Economics Branch.

Table 1.--DISTRIBUTION OF PENNSYLVANIA ANTHRACITE, APRIL 1, 1947 TO MARCH 31, 1948 BY STATES, PROVINCES, AND COUNTRIES OF DESTINATION, IN NET TONS

Destinations	Domestic sizes						Steam sizes						Total All Sizes	Percent of Total
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam		
United States:														
New England States:														
Connecticut------------	693	33,430	405,821	442,757	43,710	926,411	68,115	33,853	54,575	----	65	156,608	1,083,019	1.96
Maine------------------	----	29,114	139,041	113,634	3,945	285,734	18,493	10,384	----	----	10	28,887	314,621	0.57
Massachusetts----------	3,214	295,485	1,107,121	658,546	45,505	2,109,871	123,706	80,376	69,995	1,171	3,241	278,489	2,388,360	4.31
New Hampshire----------	----	25,146	96,149	78,531	5,145	204,971	23,611	41,018	87,024	3,537	105	155,295	360,266	0.65
Rhode Island-----------	----	21,266	143,638	111,552	9,117	285,573	18,276	13,495	----	50	2	31,823	317,396	0.57
Vermont----------------	466	16,573	91,086	71,311	7,344	186,780	32,150	16,701	19,947	----	----	68,798	255,578	0.46
Total------------------	4,373	421,014	1,982,856	1,476,331	114,766	3,999,340	284,351	195,827	231,541	4,758	3,423	719,900	4,719,240	8.52
Middle Atlantic States:														
New Jersey-------------	14,286	110,950	1,009,018	2,025,150	565,698	3,725,102	815,915	586,061	1,158,728	423,887	113,028	3,097,619	6,822,721	12.33
New York---------------	27,836	962,702	3,818,879	3,506,799	1,160,788	9,477,004	3,720,665	1,178,783	1,203,160	224,445	301,851	6,628,904	16,105,908	29.09
Pennsylvania 1/--------	105,620	282,913	1,254,340	3,261,289	2,485,151	7,389,313	1,450,528	1,495,974	2,514,316	2,022,602	1,121,322	8,604,742	15,994,055	28.89
Total------------------	147,742	1,356,565	6,082,237	8,793,238	4,211,637	20,591,419	5,987,108	3,260,818	4,876,204	2,670,934	1,536,201	18,331,265	38,922,684	70.31
South Atlantic States:2/														
Delaware---------------	48	18,820	76,360	166,179	23,403	284,810	9,976	6,488	18,139	16,013	8,328	58,944	343,754	0.62
District of Columbia---	35	16,482	83,177	91,520	18,208	209,422	27,706	1,297	3	6	56	29,068	238,490	0.43
Maryland---------------	1,521	58,707	233,260	240,023	46,017	579,528	83,534	13,005	45,600	2,714	10,277	155,130	734,658	1.33
Virginia---------------	----	13,075	30,414	38,678	7,227	89,394	13,978	339	110	22	341	14,790	104,184	0.19
Total------------------	1,604	107,084	423,211	536,400	94,855	1,163,154	135,194	21,129	63,852	18,755	19,002	257,932	1,421,086	2.57
Lake States:3/														
Illinois---------------	462	21,462	46,694	102,132	1,948	172,698	1,184	29,191	14,118	25,293	17,557	87,343	260,041	0.47
Michigan---------------	450	48,468	138,934	105,547	4,157	297,556	2,128	12,077	----	84,689	64,263	163,157	460,713	0.83
Minnesota--------------	----	331	11,785	24,407	2,641	39,164	1,934	447	----	9,285	133	11,799	50,963	0.09
Ohio-------------------	817	6,711	5,551	59,087	900	73,066	377	1,085	1,941	538	43,337	47,278	120,344	0.22
Wisconsin--------------	141	1,155	131,480	246,257	29,136	408,169	10,621	3,213	----	133,566	242,276	389,676	797,845	1.44
Total------------------	1,870	78,127	334,444	537,430	38,782	990,653	16,244	46,013	16,059	253,371	367,566	699,253	1,689,906	3.05
All Other States:--------	3,712	2,998	13,046	108,451	1,537	129,744	5,514	1,430	2,441	1,581	34,667	45,633	175,377	0.32
Total United States--	159,301	1,965,788	8,835,794	11,451,850	4,461,577	26,874,310	6,428,411	3,525,217	5,190,097	2,949,399	1,960,859	20,053,983	46,928,293	84.77
Canada:														
Ontario----------------	18,423	419,288	1,202,746	1,007,937	104,755	2,753,149	136,134	63,025	2,064	338	1,983	203,544	2,956,693	5.34
Quebec-----------------	96	93,858	407,308	252,840	20,793	774,895	374,955	121,122	53,091	11,342	14,892	575,402	1,350,297	2.44
Other Provinces--------	----	32,233	27,103	39,276	1,744	100,356	11,302	5,054	----	----	19	16,375	116,731	0.21
Total Canada 4/--------	18,519	545,379	1,637,157	1,300,053	127,292	3,628,400	522,391	189,201	55,155	11,680	16,894	795,321	4,423,721	7.99
Other Countries: 5/------	4,272	737,742	19,267	29,897	327,338	1,118,516	269,478	547,381	536,334	190,347	1,348,274	2,891,814	4,010,330	7.24
Grand Total------------	182,092	3,248,909	10,492,218	12,781,800	4,916,207	31,621,226	7,220,280	4,261,799	5,781,586	3,151,426	3,326,027	23,741,118	55,362,344	100.00

1/ Includes "Local Sales."

2/ Shipments to other states generally referred to as being in the South Atlantic area are included in "All Other States."

3/ Shipments to Indiana are included in "All Other States."

4/ Shipments reported to final Canadian destinations were as shown--4,423,721 net tons. Official data of the United States Department of Commerce show total exports to Canada of 4,430,636 net tons during the 1947-48 coal year.

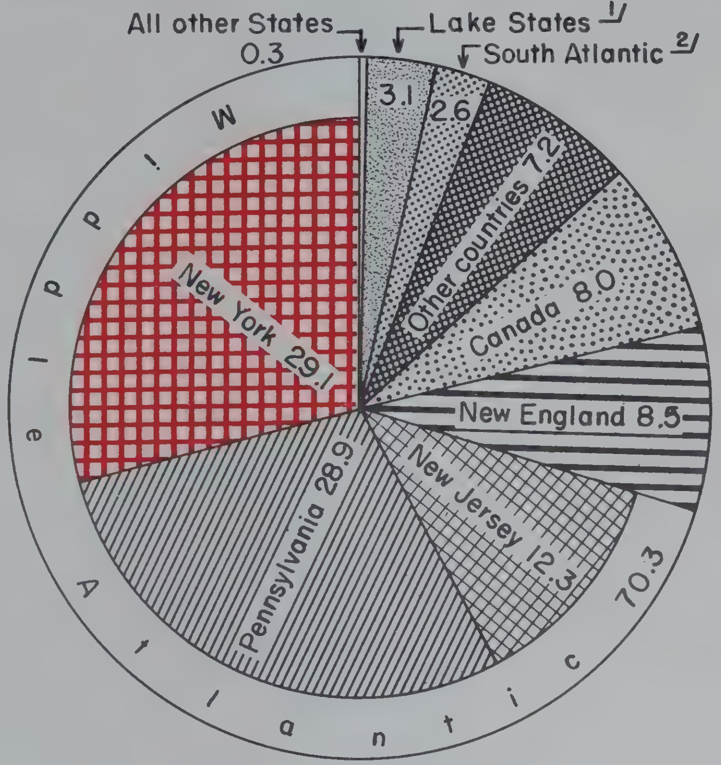
5/ Total compiled from data of the United States Department of Commerce. Size totals estimated from information furnished by shippers and representatives of the purchasing countries. See table 2 on page 4 for countries of destination.

Table 2.--United States exports of Pennsylvania anthracite to countries other than Canada, by continental groups, by months, for the coal year, April 1, 1947 to March 31, 1948 1/ 2/
(in net tons)

Country of destination	1 9 4 7									1 9 4 8			Total
	April	May	June	July	August	September	October	November	December	January	February	March	
NORTH AND CENTRAL AMERICA:													
Bahamas	4	2	----	----	----	----	----	407	----	2	----	----	415
Bermuda	----	----	----	----	----	4	3	7	----	60	30	----	104
Cuba	4,312	3,674	2,277	----	----	----	----	----	----	----	----	----	10,263
Dominican Republic	----	----	----	----	5	5	----	----	----	----	----	----	10
Mexico	3	32	----	5,559	16	----	3,351	6	21	8	3	----	8,999
Newfoundland and Labrador	1,121	----	----	----	----	3,972	2,450	337	----	----	----	----	7,880
Trinidad and Tobago	----	----	----	----	----	----	----	----	237	----	----	----	237
Total	5,440	3,708	2,277	5,559	21	3,981	5,804	757	258	70	33	----	27,908
SOUTH AMERICA:													
Argentina	10,962	----	3,370	----	----	10,864	9	200	----	----	----	----	25,405
Brazil	241	----	----	----	----	----	660	----	----	----	50	----	951
Chile	----	----	----	----	----	----	550	----	25	54	----	23	652
Falkland Islands	----	----	----	----	----	----	----	----	6	----	----	----	6
Surinam (Neth. Guiana)	----	----	570	----	----	----	----	----	----	----	----	----	570
Total	11,203	----	3,940	----	----	10,864	1,219	200	31	54	50	23	27,584
EUROPE:													
Belgium and Luxembourg	156,620	111,671	43,550	76,226	95,443	180,657	175,998	219,299	166,925	73,422	30,041	41,681	1,371,533
Denmark and Faroe Islands	----	----	----	----	3	27,406	10,964	----	2,177	----	----	----	40,550
Eire	20	3,805	64	63	3,841	1,173	137	16	56	16	----	----	9,191
France	130,271	189,542	181,468	215,341	214,424	86,147	128,474	112,448	50,109	20,394	26,431	162,982	1,518,031
Italy	37,134	----	8,146	10,781	----	----	----	11,000	10,206	----	10,265	21,820	109,352
Netherlands	----	----	21,828	----	----	----	15	2	----	993	1	----	22,839
Norway	----	----	29,131	80,720	49,971	30,843	10,470	----	----	----	----	----	201,135
Portugal	----	----	2,464	----	----	----	----	----	----	----	----	----	2,464
Sweden	108,480	107,526	47,005	60,079	93,838	101,091	1,620	----	----	----	----	----	519,639
Switzerland	----	10,917	10,915	----	19,028	21,252	42,492	10,247	----	----	----	----	114,851
United Kingdom	----	----	----	----	----	12	2	----	----	----	----	----	14
Total	432,525	423,461	344,571	443,210	476,548	448,581	370,172	353,012	229,473	94,825	66,738	226,483	3,909,599
ASIA:													
British Malaya	----	----	----	----	----	----	10,044	----	----	----	----	----	10,044
China	----	----	286	----	----	----	----	----	----	----	18	----	304
Palestine and Trans-Jordan	10,902	10,746	----	----	----	----	----	----	----	----	----	----	21,648
Syria	100	----	----	----	----	----	----	----	----	----	----	----	100
Total	11,002	10,746	286	----	----	----	10,044	----	----	----	18	----	32,096
AFRICA:													
Belgian Congo	----	----	----	----	2,448	----	----	----	----	----	----	----	2,448
Egypt	----	----	----	10,640	----	----	----	----	----	----	----	----	10,640
Gold Coast	----	----	----	----	----	2	2	----	----	----	----	----	4
Liberia	----	----	----	----	----	----	----	----	4	----	----	----	4
Madeira Islands	47	----	----	----	----	----	----	----	----	----	----	----	47
Total	47	----	----	10,640	2,448	2	2	----	4	----	----	----	13,143
GRAND TOTAL 3/	460,217	437,915	351,074	459,409	479,017	463,428	387,241	353,969	229,766	94,949	66,839	226,506	4,010,330

1/ Monthly data compiled from records of the Bureau of the Census, U. S. Department of Commerce.
2/ See pages 26 and 27 for detailed information on shipments to the Dominion of Canada.
3/ See table 1, page 3, for information on sizes of coal shipped.

Fig. 1 - PERCENTAGE DISTRIBUTION OF PENNSYLVANIA ANTHRACITE SHIPMENTS BY DESTINATIONS COAL YEAR 1947-48

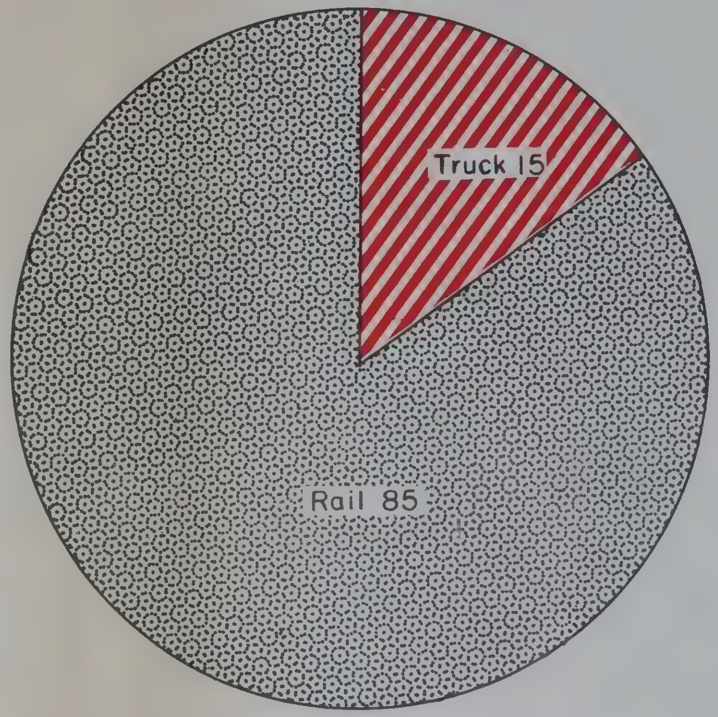


100% = 55,362,344

1/ Includes Illinois, Michigan, Minnesota, Ohio, and Wisconsin.

2/ Includes only Delaware, District of Columbia, Maryland and Virginia.

Fig. 2 - PERCENTAGE DISTRIBUTION OF PENNSYLVANIA ANTHRACITE SHIPMENTS BY METHOD OF MOVEMENT COAL YEAR 1947-48

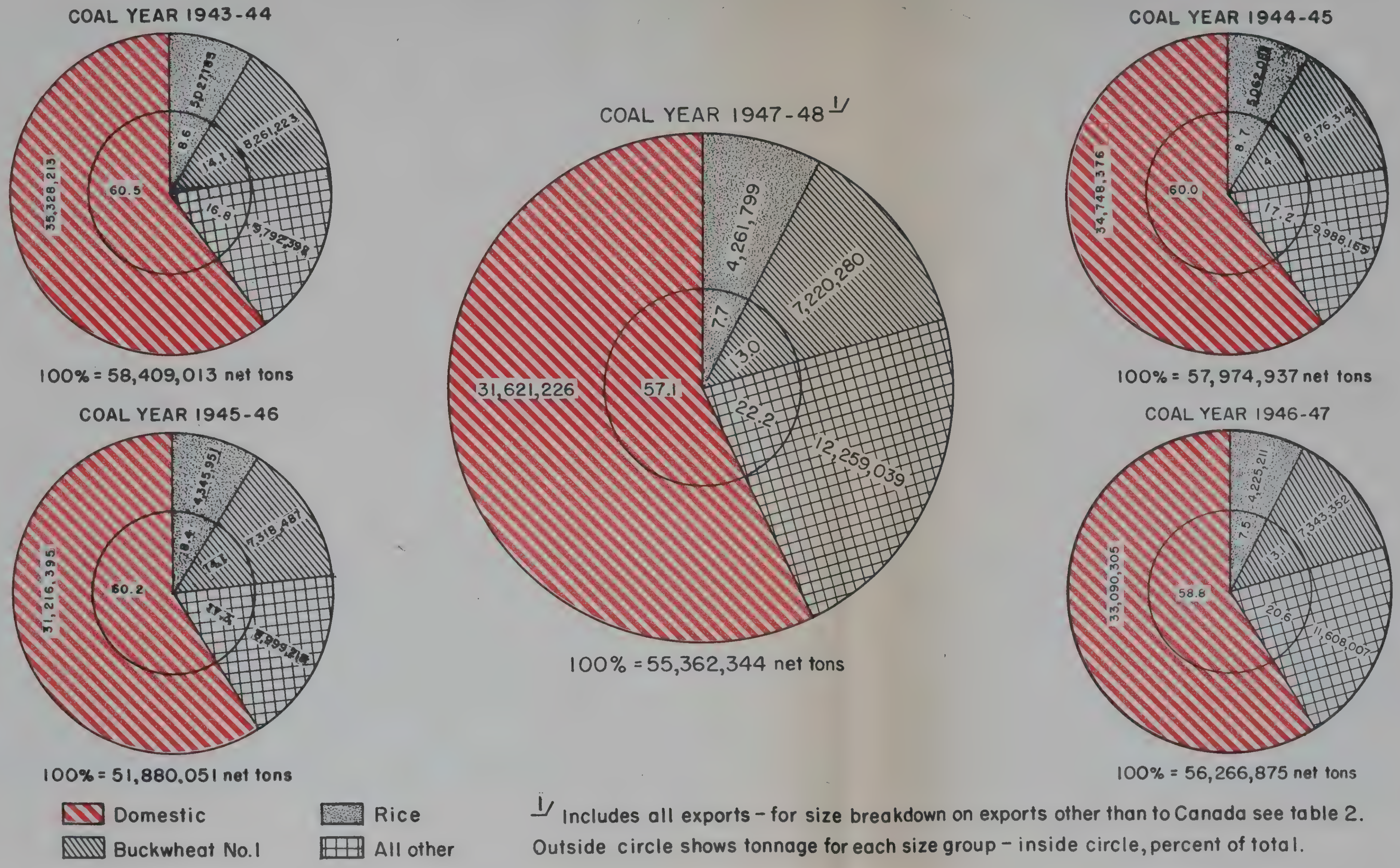


100% = 55,362,344 net tons

Rail - Includes all shipments from the mine by rail, some of which subsequently moved by lake or tidewater.

Truck - Includes "local sales".

FIG. 3-.PERCENTAGE DISTRIBUTION OF TOTAL PENNSYLVANIA ANTHRACITE SHIPMENTS BY SIZE GROUPS, FOR THE COAL YEARS IN THE PERIOD, APRIL 1, 1943 TO MARCH 31, 1948



1/ Includes all exports - for size breakdown on exports other than to Canada see table 2.

Outside circle shows tonnage for each size group - inside circle, percent of total.

Fig. 4 - PERCENTAGE DISTRIBUTION OF PENNSYLVANIA ANTHRACITE BY GEOGRAPHIC AREAS FOR THE COAL YEARS, 1916-17, 1928-29 AND 1942-48

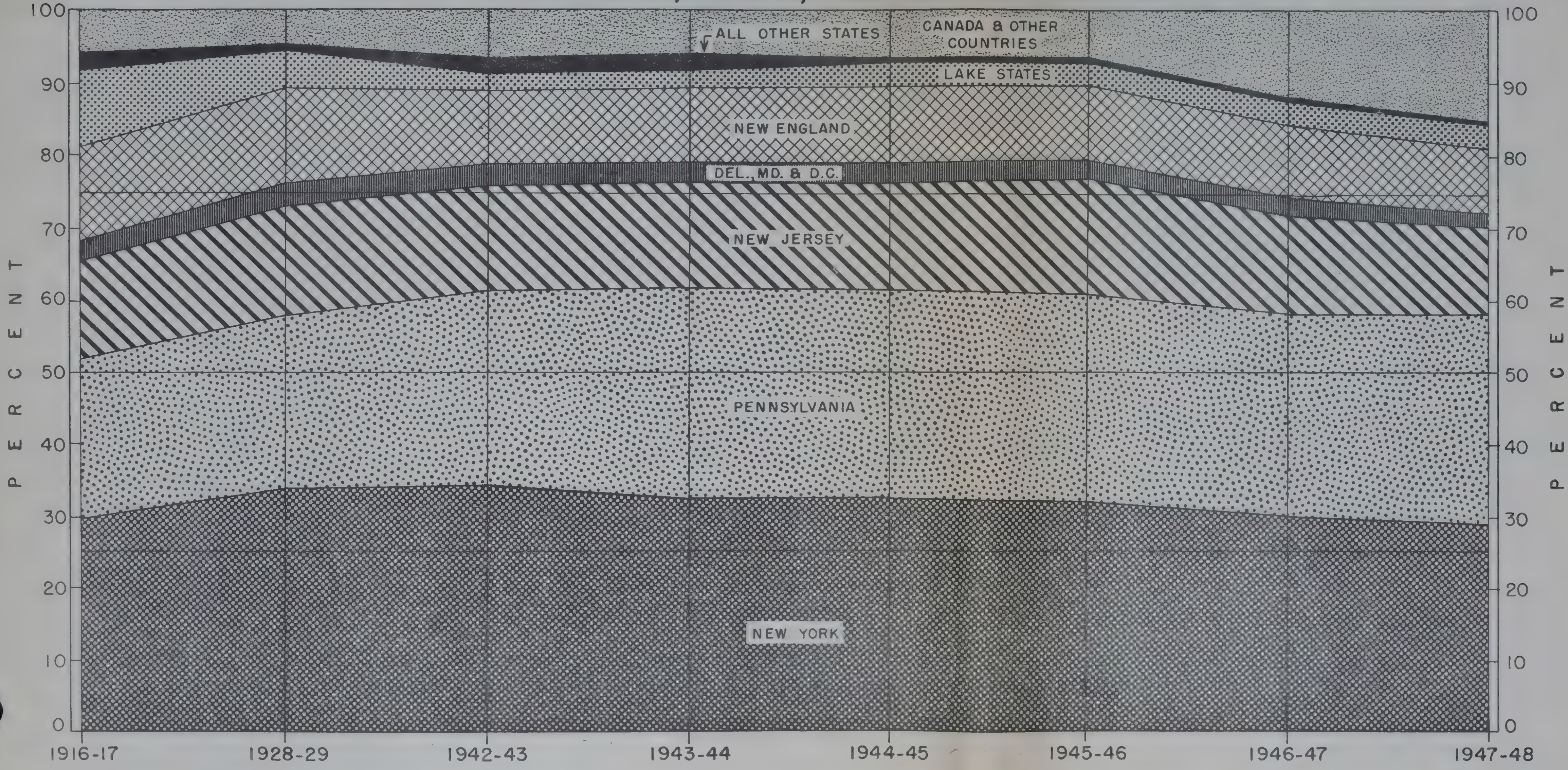
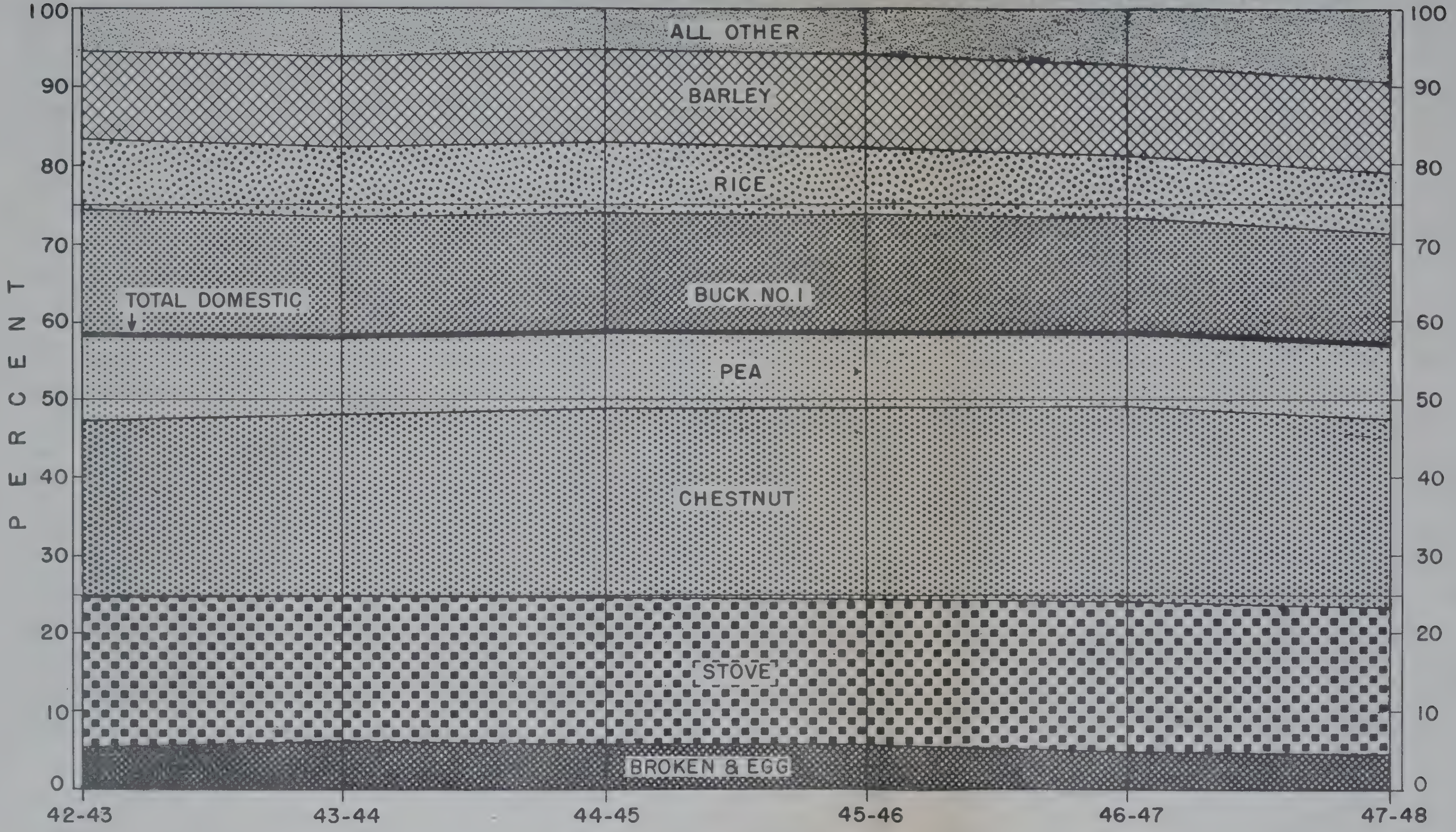


Fig. 5.- SHIPMENTS OF PENNSYLVANIA ANTHRACITE INTO THE PRIMARY MARKET AREA BY SIZES IN PERCENT OF TOTAL SHIPMENTS FOR THE COAL YEARS IN THE PERIOD APRIL 1942 TO MARCH 1948



DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Connecticut:													
Ansonia	---	45	5,714	6,299	228	12,286	593	172	---	---	---	765	13,051
Bridgeport	---	6,125	41,050	34,539	4,218	85,932	5,504	496	---	---	---	6,000	91,932
Bristol	385	232	5,445	5,796	409	12,267	116	110	---	---	---	226	12,493
Danbury	---	742	6,770	6,876	200	14,588	249	632	135	---	---	1,016	15,604
Derby	---	234	2,278	2,510	277	5,299	388	263	---	---	---	651	5,950
East Hartford	---	174	3,151	2,310	240	5,875	255	76	---	---	---	331	6,206
Greenwich	---	353	4,312	5,541	487	10,693	3,055	347	---	---	---	3,402	14,095
Hartford	---	5,981	55,745	50,528	5,550	117,804	9,819	4,306	3,302	---	---	17,427	135,231
Manchester	---	415	7,846	6,871	540	15,672	411	654	---	---	---	1,065	16,737
Meriden	---	699	13,243	10,937	681	25,560	1,446	105	---	---	---	1,551	27,111
Middletown	---	448	4,177	5,179	949	10,753	1,081	2,361	---	---	---	3,442	14,195
Naugatuck	---	781	2,808	2,977	291	6,857	150	354	---	---	---	504	7,361
New Britain	106	834	15,768	17,741	1,663	36,112	2,547	1,025	---	---	---	3,572	39,684
New Canaan	---	---	2,140	2,695	404	5,239	839	1,341	---	---	---	2,180	7,419
New Haven	154	3,492	49,634	40,593	2,943	96,816	4,244	5,454	14,748	---	---	24,446	121,262
New London	---	664	9,389	16,270	2,140	28,463	2,055	2,071	---	---	---	4,126	32,589
Norwalk	---	1,102	14,779	13,007	1,520	30,408	439	939	---	---	---	1,378	31,786
Norwich	---	61	8,437	15,777	1,479	25,754	3,327	104	---	---	---	3,431	29,185
Southport	---	---	2,687	2,392	232	5,311	935	1,192	---	---	---	2,127	7,438
Stamford	---	172	8,030	15,977	2,273	26,452	2,674	586	23,842	---	---	27,102	53,554
Thompsonville	---	264	2,826	4,430	238	7,758	1,201	188	---	---	---	1,389	9,147
Torrington	---	---	5,044	9,665	718	15,427	224	470	---	---	---	694	16,121
Wallingford	---	173	3,335	5,189	420	9,117	1,508	38	---	---	---	1,546	10,663
Waterbury	---	2,223	18,062	21,264	1,981	43,530	735	1,583	1,452	---	58	3,828	47,358
West Haven	---	715	4,300	2,925	360	8,300	104	---	---	---	---	104	8,404

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Connecticut: continued Willimantic	---	487	4,136	5,226	613	10,462	1,052	410	---	---	---	1,462	11,924
All other cities	48	7,014	104,715	129,243	12,656	253,676	23,164	8,576	11,096	---	7	42,843	296,519
State Total	693	33,430	405,821	442,757	43,710	926,411	68,115	33,853	54,575	---	65	156,608	1,083,019
Maine: Auburn	---	629	2,671	1,329	103	4,732	186	39	---	---	---	225	4,957
Augusta	---	1,336	3,990	2,764	199	8,289	1,427	---	---	---	---	1,427	9,716
Bangor	---	3,091	8,303	5,122	196	16,712	5,988	657	---	---	---	6,645	23,357
Bath	---	669	2,128	2,884	53	5,734	233	---	---	---	---	233	5,967
Biddeford	---	481	2,411	1,321	---	4,213	378	---	---	---	---	378	4,591
Brunswick	---	686	2,169	2,892	214	5,961	218	48	---	---	---	266	6,227
Gardiner	---	1,394	3,164	2,521	57	7,136	52	---	---	---	---	52	7,188
Lewiston	---	560	4,593	2,732	---	7,885	580	468	---	---	---	1,048	8,933
Portland	---	4,410	40,739	34,252	1,883	81,284	2,174	3,843	---	---	---	6,017	87,301
Rockland	---	189	5,825	8,073	78	14,165	1,139	127	---	---	---	1,266	15,431
All other cities	---	15,669	63,048	49,744	1,162	129,623	6,118	5,202	---	---	10	11,330	140,953
State Total	---	29,114	139,041	113,634	3,945	285,734	18,493	10,384	---	---	10	28,887	314,621
Massachusetts: Adams	---	325	3,996	7,668	702	12,691	1,667	1,051	---	---	---	2,718	15,409
Athol	---	473	4,530	3,273	253	8,529	171	1,553	---	---	---	1,724	10,253
Beverly	---	2,138	7,109	3,702	46	12,995	779	1,373	---	---	---	2,152	15,147
Boston	47	69,991	257,447	111,811	5,345	444,641	13,000	1,389	372	52	3,219	18,032	462,673
Brockton	---	4,755	7,853	4,345	383	17,336	359	430	---	---	---	789	18,125
Cambridge	---	21,420	44,634	29,307	1,709	97,070	1,044	2,319	13,409	---	---	16,772	113,842
Chelsea	---	5,143	15,347	10,575	---	31,065	---	---	---	---	---	---	31,065
Chicopee	---	407	8,048	8,416	712	17,583	2,550	835	---	---	---	3,385	20,968

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Massachusetts: continued													
Everett	---	1,014	2,259	2,286	275	5,834	---	---	---	87	---	87	5,921
Fall River	52	4,378	8,208	5,285	119	18,042	981	929	---	---	---	1,910	19,952
Fitchburg	---	2,079	9,656	6,235	320	18,290	613	---	---	---	---	613	18,903
Framingham	---	932	4,843	3,005	223	9,003	476	538	23,376	---	---	24,390	33,393
Gardner	---	888	3,844	3,644	465	8,841	1,054	102	---	---	---	1,156	9,997
Gloucester	---	2,042	6,556	4,574	50	13,222	1,195	3,316	---	---	---	4,511	17,733
Greenfield	---	1,837	7,519	6,351	1,016	16,723	673	1,147	---	---	---	1,820	18,543
Haverhill	---	4,320	10,904	6,394	56	21,674	466	39	---	---	---	505	22,179
Holyoke	---	704	9,362	8,851	955	19,872	13,946	1,436	---	---	---	15,382	35,254
Lawrence	---	5,476	20,572	12,325	264	38,637	1,364	2,906	---	---	---	4,270	42,907
Leominster	---	1,496	3,047	2,793	170	7,506	766	180	---	---	---	946	8,452
Lowell	105	2,785	23,880	16,135	167	43,072	2,904	6,932	---	---	---	9,836	52,908
Lynn	---	9,849	25,244	12,054	261	47,408	708	130	---	---	---	838	48,246
Malden	---	3,034	9,777	3,171	101	16,083	102	336	---	---	---	438	16,521
Maynard	---	1,594	4,010	2,330	169	8,103	913	---	---	---	---	913	9,016
Medford	---	1,325	11,034	4,674	105	17,138	49	---	---	---	---	49	17,187
Melrose	---	2,399	6,926	3,145	236	12,706	165	281	---	---	---	446	13,152
Milford	---	970	3,355	2,314	27	6,666	690	388	---	---	---	1,078	7,744
New Bedford	---	9,346	28,195	14,478	544	52,563	945	786	---	---	---	1,731	54,294
Newburyport	---	3,550	6,075	5,122	150	14,897	1,379	1,903	---	---	---	3,282	18,179
Newton	---	4,521	9,033	4,747	374	18,675	533	138	---	---	---	671	19,346
North Adams	---	875	7,067	10,507	741	19,190	3,628	2,188	---	---	---	5,816	25,006
Northampton	---	1,854	8,270	6,097	1,117	17,338	4,396	1,276	---	---	---	5,672	23,010
Norwood	---	1,845	4,489	2,773	126	9,233	366	402	---	---	---	768	10,001
Pittsfield	2,460	3,011	10,532	25,558	7,667	49,228	19,596	9,410	---	1,032	---	30,038	79,266

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Massachusetts: continued													
Plymouth	---	933	2,851	2,393	53	6,230	178	58	---	---	---	236	6,466
Quincy	---	8,857	29,496	8,513	41	46,907	427	1,204	---	---	---	1,631	48,538
Revere	---	1,536	3,553	1,428	55	6,572	---	---	---	---	---	---	6,572
Salem	---	7,518	39,497	14,511	417	61,943	1,085	174	---	---	---	1,259	63,202
Somerville	---	6,974	21,301	9,620	265	38,160	525	---	---	---	---	525	38,685
Southbridge	---	537	3,053	2,378	175	6,143	678	379	---	---	---	1,057	7,200
Springfield	---	3,267	50,457	33,726	4,656	92,106	7,667	2,255	---	---	---	9,922	102,028
Taunton	---	4,007	5,971	2,445	99	12,522	259	672	---	---	---	931	13,453
Waltham	---	3,140	12,494	6,671	532	22,837	1,165	2,229	---	---	---	3,394	26,231
Wellesley	---	2,155	6,163	3,022	210	11,550	226	239	203	---	---	668	12,218
Westfield	---	308	5,966	6,956	512	13,742	744	423	---	---	---	1,167	14,909
West Springfield	---	227	7,577	5,648	704	14,156	972	1,014	11,997	---	---	13,983	28,139
Woburn	---	1,968	9,815	3,592	75	15,450	---	39	---	---	---	39	15,489
Worcester	550	8,161	41,708	25,718	2,426	78,563	3,042	8,701	20,137	---	---	31,880	110,443
All other cities	---	69,121	273,598	177,980	10,437	531,136	29,260	19,276	501	---	22	49,059	580,195
State Total	3,214	295,485	1,107,121	658,546	45,505	2,109,871	123,706	80,376	69,995	1,171	3,241	278,489	2,388,360
New Hampshire:													
Berlin	---	---	2,914	2,073	312	5,299	1,209	20,313	57,670	2,475	---	81,667	86,966
Claremont	---	148	3,095	1,876	25	5,144	929	311	---	---	---	1,240	6,384
Concord	---	2,852	11,407	6,039	390	20,688	968	4,373	---	---	---	5,341	26,029
Dover	---	882	2,836	2,285	---	6,003	255	389	---	---	---	644	6,647
Keene	---	1,665	5,122	3,614	635	11,036	2,786	259	117	---	---	3,162	14,198
Manchester	---	3,609	10,487	10,564	822	25,482	2,074	503	1,926	1,062	---	5,565	31,047
Nashua	---	1,769	3,502	2,713	417	8,401	728	---	---	---	---	728	9,129
Portsmouth	---	2,139	7,850	6,290	417	16,696	2,344	586	---	---	---	2,930	19,626

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	Total All Sizes
New Hampshire: continued													
All other cities	---	12,082	48,936	43,077	2,127	106,222	12,318	14,284	27,311	---	105	54,018	160,240
State Total	---	25,146	96,149	78,531	5,145	204,971	23,611	41,018	87,024	3,537	105	155,295	360,266
Rhode Island:													
Cranston	---	2,473	24,097	16,972	899	44,441	1,284	2,419	---	---	---	3,703	48,144
East Providence	---	780	2,715	1,264	553	5,312	527	413	---	---	---	940	6,252
Newport	---	2,853	12,177	13,134	1,453	29,617	9,129	900	---	---	---	10,029	39,646
Pawtucket	---	1,922	17,501	16,917	1,240	37,580	937	328	---	---	---	1,265	38,845
Providence	---	5,146	44,812	24,913	2,065	76,936	2,400	1,960	---	---	---	4,360	81,296
Wakefield	---	291	3,251	4,280	204	8,026	192	99	---	---	---	291	8,317
Westerly	---	665	4,030	4,744	825	10,264	1,028	---	---	---	---	1,028	11,292
West Warwick	---	855	3,257	2,364	117	6,593	53	198	---	---	---	251	6,844
Woonsocket	---	531	2,077	2,189	235	5,032	161	---	---	---	---	161	5,193
All other cities	---	5,750	29,721	24,775	1,526	61,772	2,565	7,178	---	50	2	9,795	71,567
State Total	---	21,266	143,638	111,552	9,117	285,573	18,276	13,495	---	50	2	31,823	317,396
Vermont:													
Barre	---	1,197	3,787	4,220	585	9,789	1,577	2,716	---	---	---	4,293	14,082
Bennington	---	1,020	4,348	3,543	707	9,618	3,544	2,336	---	---	---	5,880	15,498
Brattleboro	---	2,271	4,710	4,092	346	11,419	1,523	6,063	---	---	---	7,586	19,005
Burlington	---	1,499	10,196	6,418	1,127	19,240	5,929	478	---	---	---	6,407	25,647
Montpelier	---	349	3,378	2,456	186	6,369	1,495	1,224	---	---	---	2,719	9,088
Rutland	196	816	9,809	8,720	776	20,317	2,102	606	---	---	---	2,708	23,025
St. Albans	---	---	781	849	205	1,835	895	---	---	---	---	895	2,730
St. Johnsbury	---	449	1,608	1,381	146	3,584	---	483	---	---	---	483	4,067
All other cities	270	8,972	52,469	39,632	3,266	104,609	15,085	2,795	19,947	---	---	37,827	142,436
State Total	466	16,573	91,086	71,311	7,344	186,780	32,150	16,701	19,947	---	---	68,798	255,578

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
New Jersey:													
Asbury Park	---	377	5,703	7,804	1,880	15,764	2,594	405	226	---	---	3,225	18,989
Atlantic City	---	1,222	13,516	36,060	10,929	61,727	28,511	31,165	82,741	66	---	142,483	204,210
Bayonne	279	1,000	6,671	13,783	6,505	28,238	5,908	1,887	25,517	---	---	33,312	61,550
Belleville	---	---	4,593	10,012	3,820	18,425	2,195	717	---	---	---	2,912	21,337
Belmar	---	177	4,210	7,221	1,268	12,876	1,159	1,263	---	---	---	2,422	15,298
Bergenfield	---	258	2,542	6,113	1,995	10,908	1,108	1,032	---	---	---	2,140	13,048
Bloomfield	---	1,275	10,142	22,660	5,266	39,343	10,644	7,333	---	---	---	17,977	57,320
Boonton	---	46	3,567	8,374	1,883	13,870	2,767	1,428	109	---	---	4,304	18,174
Bordentown	---	282	3,089	6,531	2,224	12,126	633	241	---	---	---	874	13,000
Bound Brook	---	350	3,864	8,703	3,425	16,342	1,776	4,076	10,179	106,864	---	122,895	139,237
Bridgeton	59	611	9,602	14,775	3,184	28,231	4,984	5,090	---	---	---	10,074	38,305
Burlington	---	706	4,200	7,081	1,671	13,658	1,083	500	---	---	---	1,583	15,241
Caldwell	---	---	1,946	4,305	1,758	8,009	1,279	917	---	---	---	2,196	10,205
Camden	---	2,495	22,471	29,753	7,357	62,076	7,838	1,563	1,835	52	---	11,288	73,364
Carteret	---	---	2,749	9,049	2,889	14,687	911	1,298	4,933	304	---	7,446	22,133
Clifton	---	177	2,650	7,594	1,907	12,328	2,318	12,214	20,501	---	---	35,033	47,361
Cranford	---	436	2,608	4,813	2,889	10,746	1,671	1,034	---	208	---	2,913	13,659
Dover	---	6,095	4,463	12,401	3,643	26,602	3,386	2,001	---	---	---	5,387	31,989
East Orange	---	830	12,762	29,288	6,462	49,342	11,502	4,278	---	---	---	15,780	65,122
Eatontown	---	---	1,395	4,391	346	6,132	6,004	475	---	---	---	6,479	12,611
Edgewater--Bergen Co.	---	---	2,811	6,125	1,850	10,786	5,007	1,803	15,313	189	---	22,312	33,098
Elizabeth	---	12,490	31,332	60,200	12,631	116,653	12,951	24,732	39,882	2,164	---	79,729	196,382
Englewood	---	609	7,857	11,847	3,247	23,560	14,594	3,128	---	---	---	17,722	41,282
Freehold	---	229	3,143	4,839	1,237	9,448	924	1,752	---	---	---	2,676	12,124
Garfield	---	916	7,751	14,118	3,949	26,734	5,694	9,160	16,381	---	904	32,139	58,873

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	Total All Sizes
New Jersey: continued													
Gloucester	---	149	5,417	7,952	1,459	14,977	493	---	---	---	---	493	15,470
Hackensack	---	71	7,974	14,653	5,035	27,733	4,721	4,395	---	---	---	9,116	36,849
Haddonfield	---	510	5,201	5,862	2,406	13,979	1,049	581	---	---	---	1,630	15,609
Harrison	---	1,281	13,750	34,417	6,940	56,388	6,667	2,505	38,575	---	---	47,747	104,135
Hawthorne	---	48	3,435	6,303	1,283	11,069	653	1,782	---	---	---	2,435	13,504
Hoboken	---	7,462	21,225	24,691	18,749	72,127	61,483	14,847	11,612	---	---	87,942	160,069
Irvington	---	4,017	27,047	67,615	11,597	110,276	13,248	2,890	---	---	---	16,138	126,414
Jersey City	---	14,855	61,493	96,209	55,626	228,183	122,845	72,206	143,342	4,661	1,197	344,251	572,434
Kearny	---	---	1,355	7,999	1,439	10,793	2,120	12,755	37,325	8,609	---	60,809	71,602
Lakewood	---	105	3,671	5,245	1,205	10,226	2,563	1,390	---	---	---	3,953	14,179
Linden	---	53	1,507	5,482	1,479	8,521	924	1,563	---	---	---	2,487	11,008
Long Branch	765	---	5,598	13,233	2,621	22,217	2,257	156	---	---	---	2,413	24,630
Madison	---	323	1,318	2,036	521	4,198	4,191	---	---	---	---	4,191	8,389
Maplewood	---	53	3,841	11,136	2,515	17,545	2,833	3,676	---	---	---	6,509	24,054
Millville	---	253	3,192	6,484	1,203	11,132	591	---	55	---	---	646	11,778
Montclair	---	3,044	10,067	15,159	4,144	32,414	7,245	8,876	---	---	---	16,121	48,535
Morristown	---	1,449	10,178	18,657	3,526	33,810	5,006	5,424	---	---	---	10,430	44,240
Mount Holly	---	434	3,366	4,724	1,643	10,167	1,766	328	---	---	---	2,094	12,261
Newark	---	6,902	71,423	158,131	32,970	269,426	56,934	51,327	32,261	12,060	---	152,582	422,008
New Brunswick	---	261	6,323	19,931	5,204	31,719	5,176	3,040	---	---	---	8,216	39,935
North Bergen	---	635	4,938	9,651	5,118	20,342	10,389	3,539	---	---	---	13,928	34,270
Nutley	---	48	2,873	6,227	1,820	10,968	2,747	1,122	---	---	---	3,869	14,837
Orange	---	1,347	15,860	30,756	7,087	55,050	11,460	3,026	---	---	---	14,486	69,536
Palisades Park	---	93	1,653	1,700	1,084	4,530	19,816	5,978	106	---	---	25,900	30,430
Passaic	---	253	6,737	15,393	2,846	25,229	4,230	2,715	49,405	---	---	56,350	81,579

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
New Jersey: continued Paterson	---	1,449	44,432	85,411	14,042	145,334	24,446	26,895	15,454	---	---	66,795	212,129
Perth Amboy	3,617	2,636	9,033	23,690	10,839	49,815	5,333	1,916	9,965	5,746	5,635	28,595	78,410
Phillipsburg	5,209	52	4,494	11,696	5,099	26,550	3,295	15,726	26,821	38,324	---	84,166	110,716
Plainfield	---	1,094	13,135	30,055	10,160	54,444	9,497	7,235	10,783	---	---	27,515	81,959
Pleasantville	---	173	5,263	8,701	2,234	16,371	1,022	327	---	---	---	1,349	17,720
Port Reading	---	---	---	369	457	826	130	24,215	10,379	---	---	34,724	35,550
Princeton	---	186	4,770	6,367	2,293	13,616	4,066	2,546	6,929	---	---	13,541	27,157
Rahway	---	247	5,500	8,062	3,180	16,989	1,011	751	311	---	---	2,073	19,062
Red Bank	---	332	8,625	13,198	3,023	25,178	2,195	548	---	---	---	2,743	27,921
Ridgefield	---	44	3,075	5,739	2,221	11,079	2,184	1,209	---	---	---	3,393	14,472
Ridgefield Park	---	55	1,175	1,569	658	3,457	794	1,831	142	---	---	2,767	6,224
Rutherford	---	332	2,879	4,120	1,511	8,842	4,429	559	---	---	---	4,988	13,830
Somerville	---	222	1,734	7,378	2,907	12,241	2,468	1,510	---	---	---	3,978	16,219
South Amboy	---	---	3,112	3,961	1,511	8,584	661	109	---	---	---	770	9,354
South Orange	---	544	7,348	21,236	2,397	31,525	3,959	3,363	---	---	---	7,322	38,847
South River	---	---	1,117	7,791	1,550	10,458	346	182	---	---	---	528	10,986
Springfield	---	97	1,846	4,057	1,586	7,586	2,408	3,012	---	---	---	5,420	13,006
Summit	---	736	3,809	7,602	2,128	14,275	4,235	7,067	---	---	---	11,302	25,577
Trenton	56	2,239	29,338	77,764	20,981	130,378	10,957	23,754	67,419	7,362	4,900	114,392	244,770
Verona	---	---	2,639	4,671	1,937	9,247	1,670	1,947	---	---	---	3,617	12,864
Vineland	---	49	5,736	13,897	1,630	21,312	1,329	53	364	---	---	1,746	23,058
Weehawken	---	636	4,642	6,290	2,728	14,296	10,019	1,603	287	1,907	---	13,816	28,112
Westfield	---	256	2,542	5,075	2,296	10,169	2,318	3,811	---	---	---	6,129	16,298
West Orange	---	672	3,296	5,192	1,588	10,748	1,702	1,374	---	---	---	3,076	13,824
Woodbridge	---	47	1,740	5,114	2,105	9,006	907	693	---	---	---	1,600	10,606

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	Total All Sizes
New Jersey: continued Woodbury	---	362	950	998	420	2,730	255	90	2,298	---	---	2,643	5,373
All other cities	4,270	18,668	234,747	462,152	134,327	854,164	186,884	108,682	467,373	235,350	100,392	1,098,681	1,952,845
Total rail shipments	14,255	105,355	882,056	1,769,641	509,543	3,280,850	777,368	564,621	1,148,823	423,866	113,028	3,027,706	6,308,556
Total truck shipments	31	5,595	126,962	255,509	56,155	444,252	38,547	21,440	9,905	21	---	69,913	514,165
State Total	14,286	110,950	1,009,018	2,025,150	565,698	3,725,102	815,915	586,061	1,158,728	423,887	113,028	3,097,619	6,822,721
New York: Albany	---	3,854	66,354	59,242	20,790	150,240	43,493	15,914	3,489	---	---	62,896	213,136
Amsterdam	---	1,055	16,640	26,674	2,983	47,352	4,547	1,858	237,854	---	---	244,259	291,611
Auburn	---	4,887	21,398	17,530	5,674	49,489	8,810	8,106	---	---	---	16,916	66,405
Babylon, L.I.	---	812	6,754	11,949	1,532	21,047	3,537	545	---	---	---	4,082	25,129
Baldwin, L.I.	---	---	1,636	3,564	764	5,964	2,381	3,080	---	---	---	5,461	11,425
Batavia	---	2,454	8,361	5,036	1,432	17,283	1,976	1,769	---	---	---	3,745	21,028
Binghamton	3,800	6,046	43,515	34,110	17,282	104,753	40,598	25,439	17,359	24,674	---	108,070	212,823
Buffalo	213	74,220	277,028	161,770	17,219	530,450	46,944	9,846	2	12,898	53,372	123,062	653,512
Canandaigua	---	1,931	5,886	4,776	1,085	13,678	1,467	2,367	171	---	---	4,005	17,683
Catskill	---	124	4,079	5,931	1,128	11,262	2,868	2,421	---	---	---	5,289	16,551
Cohoes	---	670	7,429	11,660	1,446	21,205	1,569	50	204	---	---	1,823	23,028
Corning	---	1,621	7,287	5,017	1,193	15,118	1,207	517	40	---	---	1,764	16,882
Cortland	---	1,571	6,442	5,873	3,327	17,213	3,852	4,929	---	---	---	8,781	25,994
Dunkirk	---	1,151	4,245	4,455	484	10,335	40	294	---	---	---	334	10,669
Elmira	2,794	10,934	29,923	24,220	7,608	75,479	13,791	9,109	1,831	---	---	24,731	100,210
Endicott	---	1,038	7,813	10,784	7,682	27,317	4,205	6,216	---	---	---	10,421	37,738
Floral Park	---	---	4,284	5,720	1,264	11,268	2,960	1,257	---	---	---	4,217	15,485
Freeport, L.I.	---	1,280	5,357	10,315	1,998	18,950	1,591	1,295	66	---	---	2,952	21,902
Fulton	---	2,627	5,159	4,734	1,795	14,315	2,194	1,516	---	---	---	3,710	18,025

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
New York: continued													
Geneva	---	2,941	11,959	10,967	3,354	29,221	4,412	5,868	---	---	---	10,280	39,501
Glens Falls	---	270	9,907	9,809	2,615	22,601	5,625	3,310	66,778	---	---	75,713	98,314
Gloversville	---	1,486	9,006	8,246	2,521	21,259	2,217	710	2,502	---	---	5,429	26,688
Hempstead, L.I.	---	559	3,892	4,985	1,440	10,876	1,976	1,134	---	---	---	3,110	13,986
Hornell	---	857	3,238	2,595	504	7,194	538	472	---	---	---	1,010	8,204
Hudson	---	479	7,394	8,463	535	16,871	6,902	5,141	---	72	---	12,115	28,986
Huntington, L.I.	---	1,343	8,810	13,223	2,500	25,876	2,308	589	---	---	---	2,897	28,773
Ilion	---	1,860	6,877	4,446	1,443	14,626	1,642	1,145	12,672	---	---	15,459	30,085
Ithaca	---	2,923	13,680	13,785	5,645	36,033	11,868	7,968	20,071	---	---	39,907	75,940
Jamestown	---	2,664	10,594	8,729	1,452	23,439	825	3,384	---	---	---	4,209	27,648
Johnson City	---	143	3,255	2,699	1,409	7,506	3,988	239	---	---	---	4,227	11,733
Johnstown	---	1,672	7,538	7,843	2,663	19,716	1,820	639	---	---	---	2,459	22,175
Kingston	---	1,469	13,441	13,573	4,515	32,998	4,257	3,982	---	3,110	594	11,943	44,941
Lackawanna	---	5,170	17,516	9,255	1,953	33,894	803	203	1,599	5	---	2,610	36,504
Little Falls	---	1,337	4,010	4,631	712	10,690	1,471	346	---	---	---	1,817	12,507
Lockport	---	4,839	16,347	10,587	1,866	33,639	1,624	623	---	---	---	2,247	35,886
Malone	---	630	4,495	4,056	411	9,592	2,148	1,211	---	---	---	3,359	12,951
Mamaroneck	---	413	4,173	4,545	870	10,001	862	267	---	---	---	1,129	11,130
Massena	---	877	5,031	5,096	841	11,845	1,354	651	---	---	---	2,005	13,850
Medina	---	1,278	6,366	3,926	970	12,540	1,284	1,964	---	---	---	3,248	15,788
Middletown	---	1,170	9,594	9,582	2,851	23,197	4,230	4,958	703	18,135	---	28,026	51,223
Mineola, L.I.	---	198	14,516	24,675	5,004	44,393	8,600	1,409	---	---	---	10,009	54,402
Mount Vernon	---	2,633	21,056	16,797	5,047	45,533	22,992	5,589	---	---	---	28,581	74,114
Newark	---	1,837	6,799	5,397	1,227	15,260	901	6,583	---	---	---	7,484	22,744
Newburgh	---	1,066	12,479	19,695	3,912	37,152	4,987	1,388	---	---	---	6,375	43,527

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	Total All Sizes
New York: continued New Hyde Park, L.I.	---	---	8,533	14,449	3,374	26,356	2,775	1,711	---	---	---	4,486	30,842
New Rochelle	---	1,218	6,895	7,238	1,610	16,961	7,623	1,199	---	---	---	8,822	25,783
New York City	14,900	425,966	1,196,572	977,266	516,333	3,131,037	2,732,569	596,862	521,521	23,430	45,555	3,919,937	7,050,974
Niagara Falls	---	5,787	29,910	22,670	6,478	64,845	22,341	26,474	43,576	---	1,160	93,551	158,396
North Tonawanda	---	1,148	10,792	15,105	3,742	30,787	1,421	1,363	---	---	---	2,784	33,571
Norwich	106	1,269	5,339	4,635	1,700	13,049	3,365	3,873	---	---	---	7,238	20,287
Oneida	---	3,167	7,837	4,773	2,357	18,134	2,538	1,204	---	---	---	3,742	21,876
Oneonta	104	1,619	9,698	11,220	2,746	25,387	8,072	7,779	---	---	---	15,851	41,238
Ossining	---	---	2,270	3,021	760	6,051	1,125	239	---	---	---	1,364	7,415
Oswego	---	6,296	17,630	13,799	2,985	40,710	6,884	4,556	119	---	---	11,559	52,269
Patchogue, L.I.	---	427	6,792	9,082	791	17,092	3,005	954	---	---	---	3,959	21,051
Peekskill	---	296	7,209	10,019	1,283	18,807	1,407	1,100	---	---	---	2,507	21,314
Penn Yan	---	731	3,349	4,243	1,442	9,765	799	2,450	---	---	---	3,249	13,014
Plattsburg	---	647	4,241	8,121	810	13,819	8,310	2,025	---	---	---	10,335	24,154
Port Chester	---	930	7,880	12,405	1,652	22,867	1,728	250	---	---	---	1,978	24,845
Port Jervis	---	381	5,483	9,800	2,158	17,822	2,161	2,632	2,364	---	---	7,157	24,979
Poughkeepsie	4,245	5,859	24,188	22,105	4,820	61,217	9,004	13,187	54	---	---	22,245	83,462
Rochester	60	62,215	233,270	119,304	41,545	456,394	34,635	26,310	73	---	72	61,090	517,484
Rome	---	7,989	19,394	14,343	10,095	51,821	6,262	2,725	---	---	---	8,987	60,808
Saranac Lake	---	---	4,905	5,085	929	10,919	4,363	442	---	---	---	4,805	15,724
Saratoga Springs	---	879	3,762	4,651	1,205	10,497	2,793	2,584	---	---	---	5,377	15,874
Schenectady	---	1,700	50,914	80,403	23,804	156,821	30,615	9,006	---	---	---	39,621	196,442
Scotia	---	46	3,991	6,531	2,446	13,014	3,538	5,256	---	---	---	8,794	21,808
Seneca Falls	---	1,413	3,628	4,502	1,528	11,071	1,042	553	---	---	---	1,595	12,666
Syracuse	104	39,796	170,218	79,384	35,482	324,984	63,980	48,039	1,177	---	260	113,456	438,440

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
New York: continued													
Tarrytown	---	1,709	8,264	8,070	1,200	19,243	3,008	1,223	---	---	---	4,231	23,474
Tonawanda	---	1,537	11,908	7,406	2,891	23,742	2,794	3,205	---	---	---	5,999	29,741
Troy	---	5,927	33,451	43,766	6,930	90,074	20,556	7,210	14,591	---	---	42,357	132,431
Utica	---	11,777	51,810	29,180	8,660	101,427	40,492	11,560	9,222	---	---	61,274	162,701
Watertown	---	5,124	17,041	13,218	4,692	40,075	7,890	3,826	---	---	---	11,716	51,791
Watervliet	---	515	5,157	5,698	1,040	12,410	788	275	157	---	---	1,220	13,630
White Plains	---	953	9,788	11,410	1,239	23,390	2,252	932	---	---	---	3,184	26,574
Yonkers	---	7,596	32,017	37,196	9,860	86,669	25,527	4,410	---	---	---	29,937	116,606
All other cities	1,510	197,892	903,500	1,063,747	250,769	2,417,418	306,070	213,246	244,863	142,121	200,838	1,107,138	3,524,556
Total rail shipments	27,836	959,198	3,679,199	3,324,810	1,112,302	9,103,345	3,659,396	1,164,961	1,203,058	224,445	301,851	6,553,711	15,657,056
Total truck shipments	---	3,504	139,680	181,989	48,486	373,659	61,269	13,822	102	---	---	75,193	448,852
State Total	27,836	962,702	3,818,879	3,506,799	1,160,788	9,477,004	3,720,665	1,178,783	1,203,160	224,445	301,851	6,628,904	16,105,908
Pennsylvania													
Allentown	---	28	2,257	13,095	14,385	29,765	12,704	7,785	28,335	57,074	3,144	109,042	138,807
Ardmore	---	1,278	4,848	6,912	2,165	15,203	3,298	978	---	---	---	4,276	19,479
Bangor	---	---	233	2,206	1,312	3,751	1,077	288	---	---	---	1,365	5,116
Bethlehem	96	285	6,472	19,319	11,931	38,103	8,528	11,648	151,704	---	4,766	176,646	214,749
Bridgeport	---	---	1,632	4,462	15,451	21,545	51,438	5,053	24,548	18,775	---	99,814	121,359
Bristol	---	488	2,610	6,714	2,016	11,828	801	60	12,630	597	53	14,141	25,969
Carlisle	1,765	809	2,828	3,866	1,481	10,749	2,324	1,861	422	---	---	4,607	15,356
Chester	---	882	12,040	23,740	5,922	42,584	2,611	1,220	9,980	4,550	---	18,361	60,945
Coatesville	108	13,211	4,941	8,555	2,498	29,313	2,152	1,020	---	---	---	3,172	32,485
Columbia	1,256	883	3,667	7,842	4,572	18,220	2,083	5,947	1,115	---	---	9,145	27,365
Easton	---	13,237	10,318	20,748	9,245	53,548	12,545	17,335	3,248	---	---	33,128	86,676
Elkins Park	---	846	6,546	11,291	5,908	24,591	4,826	2,061	193	---	52	7,132	31,723

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	Total All Sizes
Pennsylvania: continued													
Ephrata	---	261	1,443	2,597	1,691	5,992	1,192	648	115	---	---	1,955	7,947
Erie	51	31,568	36,282	15,239	1,051	84,191	1,563	2,389	---	---	---	3,952	88,143
Hanover	---	372	2,317	3,083	1,047	6,819	1,396	416	---	---	---	1,812	8,631
Harrisburg	---	6,617	11,383	16,008	7,996	42,004	8,174	9,448	4,682	56,743	6,188	85,235	127,239
Lancaster	12,392	3,929	16,544	23,727	12,155	68,747	14,039	5,119	63,492	2,993	---	85,643	154,390
Lansdale	---	---	818	2,343	1,670	4,831	639	156	739	---	---	1,534	6,365
Lebanon	---	941	2,962	4,444	3,140	11,487	6,763	2,156	2,953	---	2,164	14,036	25,523
Lewistown	---	263	467	804	157	1,691	145	---	---	---	3,262	3,407	5,098
Media	---	714	2,508	3,651	1,913	8,786	1,148	1,390	---	---	---	2,538	11,324
Middletown	---	---	1,430	3,574	1,087	6,091	440	1,001	---	---	---	1,441	7,532
Morrisville	---	105	2,991	8,928	2,717	14,741	1,316	122	---	---	100	1,538	16,279
Norristown	---	431	6,453	16,162	10,234	33,280	6,446	577	8,059	---	---	15,082	48,362
Philadelphia	2,018	65,181	361,780	802,345	285,748	1,517,072	202,094	257,669	351,889	110,062	15,264	936,978	2,454,050
Phoenixville	4,909	714	3,015	5,864	10,080	24,582	13,640	1,665	---	111	63	15,479	40,061
Pottstown	---	110	2,389	6,073	7,376	15,948	2,582	3,013	---	---	---	5,595	21,543
Reading	56	1,726	17,581	34,602	21,332	75,297	17,168	51,000	22,528	3,290	---	93,986	169,283
Sayre	---	544	2,524	4,123	2,319	9,510	1,842	1,859	25,822	---	---	29,523	39,033
Steelton	---	208	1,093	1,376	907	3,584	661	1,477	534	---	---	2,672	6,256
Sunbury	3,507	146	1,208	1,876	2,743	9,480	2,963	646	878	41,086	9,067	54,640	64,120
Upper Darby	---	720	5,989	12,536	8,148	27,393	4,350	343	---	---	---	4,693	32,086
West Chester	---	493	3,749	5,239	2,926	12,407	2,864	226	161	---	---	3,251	15,658
Williamsport	9,340	584	4,286	3,587	2,564	20,361	4,021	993	22,634	14,193	7,991	49,832	70,193
York	15,638	3,017	17,357	26,492	7,873	70,377	8,437	9,522	602	46,257	56	64,874	135,251
All other cities	23,060	99,551	175,981	346,474	220,755	865,821	150,239	504,285	1,231,987	970,816	501,539	3,358,866	4,224,687
Total rail shipments	74,196	250,142	740,942	1,479,897	694,515	3,239,692	558,509	911,376	1,969,250	1,326,547	553,709	5,319,391	8,559,083

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Pennsylvania: continued Truck shipments (Outside "Local Sales" area)	2,885	23,685	375,347	954,179	513,120	1,869,216	352,950	238,675	266,603	134,515	534,741	1,527,484	3,396,700
Local Sales 1/	28,539	9,086	138,051	827,213	1,277,516	2,280,405	539,069	345,923	278,463	561,540	32,872	1,757,867	4,038,272
State Total	105,620	282,913	1,254,340	3,261,289	2,485,151	7,389,313	1,450,528	1,495,974	2,514,316	2,022,602	1,121,322	8,604,742	15,994,055

1/ This tonnage was transported principally by truck.

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Delaware:													
Dagsboro	---	80	518	8,884	539	10,021	---	---	---	---	---	---	10,021
Dover	---	1,358	1,757	2,628	650	6,393	649	---	---	---	---	649	7,042
Frankford	---	---	316	8,148	188	8,652	---	---	---	---	---	---	8,652
Millsboro	---	45	771	12,906	652	14,374	---	---	---	---	---	---	14,374
Wilmington	48	6,934	38,121	56,721	11,612	113,436	5,397	5,534	14,179	15,985	---	41,095	154,531
All other cities	---	9,699	26,576	61,434	8,298	106,007	3,043	702	3,960	---	8,328	16,033	122,040
Total rail shipments	48	18,116	68,059	150,721	21,939	258,883	9,089	6,236	18,139	15,985	8,328	57,777	316,660
Total truck shipments	---	704	8,301	15,458	1,464	25,927	887	252	---	28	---	1,167	27,094
State Total	48	18,820	76,360	166,179	23,403	284,810	9,976	6,488	18,139	16,013	8,328	58,944	343,754
District of Columbia:	35	16,482	83,177	91,520	18,208	209,422	27,706	1,297	3	6	56	29,068	238,490
Maryland:													
Annapolis	---	2,710	6,519	4,664	1,507	15,400	716	---	---	---	---	716	16,116
Baltimore	1,474	27,221	121,000	96,002	16,761	262,458	36,972	8,039	36,892	2,598	10,215	94,716	357,174
Elkton	---	732	3,830	4,348	766	9,676	1,089	102	---	---	---	1,191	10,867
Salisbury	47	3,737	4,909	6,408	715	15,816	494	382	---	---	---	876	16,692
Silver Spring	---	700	4,213	4,110	1,825	10,848	2,731	402	---	---	---	3,133	13,981
All other cities	---	22,214	77,328	109,457	21,999	230,998	39,559	3,758	8,681	116	62	52,176	283,174
Total rail shipments	1,521	57,314	217,799	224,989	43,573	545,196	81,561	12,683	45,573	2,714	10,277	152,808	698,004
Total truck shipments	---	1,393	15,461	15,034	2,444	34,332	1,973	322	27	---	---	2,322	36,654
State Total	1,521	58,707	233,260	240,023	46,017	579,528	83,534	13,005	45,600	2,714	10,277	155,130	734,658
Virginia:													
Alexandria	---	1,183	4,621	4,273	1,456	11,533	1,724	282	---	---	---	2,006	13,539
Norfolk	---	48	1,873	1,206	---	3,127	49	---	---	---	---	49	3,176
Richmond	---	172	1,861	3,288	54	5,375	---	---	---	---	---	---	5,375
All other cities	---	11,672	22,059	29,911	5,717	69,359	12,205	57	110	22	341	12,735	82,094
State Total	---	13,075	30,414	38,678	7,227	89,394	13,978	339	110	22	341	14,790	104,184

LAKE STATES

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Illinois:													
Chicago	162	1,341	23,645	66,509	890	92,547	807	7,512	1,784	24,686	13,941	48,730	141,277
All other cities	300	20,121	23,049	35,623	1,058	80,151	377	21,679	12,334	607	3,616	38,613	118,764
State Total	462	21,462	46,694	102,132	1,948	172,698	1,184	29,191	14,118	25,293	17,557	87,343	260,041
Michigan:													
Detroit	---	25,649	90,696	51,431	1,998	169,774	1,339	1,321	---	82,398	36,803	121,861	291,635
All other cities	450	22,819	48,238	54,116	2,159	127,782	789	10,756	---	2,291	27,460	41,296	169,078
State Total	450	48,468	138,934	105,547	4,157	297,556	2,128	12,077	---	84,689	64,263	163,157	460,713
Minnesota:													
Minneapolis	---	70	1,700	3,321	810	5,901	1,220	218	---	---	36	1,474	7,375
St. Paul	---	80	5,565	4,762	833	11,240	115	201	---	---	11	327	11,567
All other cities	---	181	4,520	16,324	998	22,023	599	28	---	9,285	86	9,998	32,021
State Total	---	331	11,785	24,407	2,641	39,164	1,934	447	---	9,285	133	11,799	50,963
Ohio:													
Cleveland	157	1,585	1,076	3,945	55	6,818	24	---	52	1	43,065	43,142	49,960
Toledo	---	1,017	2,485	12,267	50	15,819	45	91	---	377	---	513	16,332
All other cities	660	4,109	1,990	42,875	795	50,429	308	994	1,889	160	272	3,623	54,052
State Total	817	6,711	5,551	59,087	900	73,066	377	1,085	1,941	538	43,337	47,278	120,344
Wisconsin:													
Milwaukee	---	572	94,487	174,537	23,258	292,854	7,786	2,380	---	55,688	7,440	73,294	366,148
Sheboygan	---	114	2,333	11,652	3,180	17,279	1,079	178	---	---	71,493	72,750	90,029
Superior	---	68	1,224	4,453	619	6,364	121	156	---	---	157,092	157,369	163,733
All other cities	141	401	33,436	55,615	2,079	91,672	1,635	499	---	77,878	6,251	86,263	177,935
State Total	141	1,155	131,480	246,257	29,136	408,169	10,621	3,213	---	133,566	242,276	389,676	797,845

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
All Other States: Rail Shipments	3,712	2,939	8,976	99,220	935	115,782	4,955	1,204	2,441	1,581	34,655	44,836	160,618
Truck shipments	---	59	4,070	9,231	602	13,962	559	226	---	---	12	797	14,759
Total All Other States	3,712	2,998	13,046	108,451	1,537	129,744	5,514	1,430	2,441	1,581	34,667	45,633	175,377
Total United States	159,301	1,965,788	8,835,794	11,451,850	4,461,577	26,874,310	6,428,411	3,525,217	5,190,097	2,949,399	1,960,859	20,053,983	46,928,293

CANADA

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Ontario:													
Barrie	---	1,682	4,888	5,188	966	12,724	648	100	---	---	---	748	13,472
Belleville	---	1,881	8,855	11,837	609	23,182	975	---	---	---	---	975	24,157
Brampton	---	674	4,806	5,231	970	11,681	79	240	93	---	---	412	12,093
Brantford	---	6,918	23,058	18,316	2,454	50,746	2,670	247	---	---	---	2,917	53,663
Brockville	---	412	10,245	14,030	298	24,985	1,334	67	---	---	---	1,401	26,386
Cornwall	---	1,129	7,956	5,779	51	14,915	1,421	347	---	---	---	1,768	16,683
Galt	---	4,373	11,142	6,269	639	22,423	786	588	---	---	---	1,374	23,797
Guelph	---	4,158	10,963	8,057	653	23,831	835	348	---	---	---	1,183	25,014
Hamilton	---	42,463	90,085	58,789	6,615	197,952	13,980	7,092	5	9	---	21,086	219,038
Kingston	---	2,275	19,904	22,554	1,083	45,816	2,301	390	---	---	---	2,691	48,507
Kitchener	52	3,313	9,615	5,683	619	19,282	461	185	49	---	---	695	19,977
London	---	21,798	30,846	18,293	2,137	73,074	1,371	2,272	---	---	---	3,643	76,717
Niagara Falls	---	3,807	15,906	10,595	2,887	33,195	2,414	---	---	---	---	2,414	35,609
Oshawa	---	3,379	16,690	15,110	1,559	36,738	701	55	---	---	---	756	37,494
Ottawa	---	11,966	67,763	35,575	3,170	118,474	31,141	19,826	---	329	---	51,296	169,770
Peterboro	---	3,227	12,041	11,612	1,989	28,869	721	---	---	---	---	721	29,590
St. Catherines	---	5,354	18,485	10,224	767	34,830	994	686	---	---	---	1,680	36,510
St. Thomas	---	4,407	10,187	5,678	520	20,792	131	488	---	---	---	619	21,411
Stratford	---	2,318	11,480	6,900	740	21,438	347	1,676	---	---	---	2,023	23,461
Sudbury	---	3,706	5,292	3,324	303	12,625	679	100	---	---	---	779	13,404
Toronto	---	140,006	434,181	340,718	39,093	953,998	48,529	13,377	300	---	317	62,523	1,016,521
Waterloo	---	2,776	12,311	6,788	333	22,208	239	---	---	---	---	239	22,447
Welland	18,270	3,357	8,366	5,936	611	36,540	1,463	4,389	---	---	---	5,852	42,392
Windsor	---	18,232	24,139	9,716	438	52,525	63	---	---	---	---	63	52,588
Woodstock	---	3,440	5,475	4,284	623	13,822	120	617	---	---	---	737	14,559

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	Total All Sizes
Ontario: continued All other cities	101	122,237	328,067	361,451	34,628	846,484	21,731	9,935	1,617	---	1,666	34,949	881,433
Province Total	18,423	419,288	1,202,746	1,007,937	104,755	2,753,149	136,134	63,025	2,064	338	1,983	203,544	2,956,693
Quebec: Chicoutimi	---	1,400	969	1,579	---	3,948	2,778	---	---	---	---	2,778	6,726
Hull	---	886	2,324	1,804	308	5,322	1,491	578	---	---	---	2,069	7,391
Lachine	---	1,115	5,076	3,660	402	10,253	1,586	99	173	---	---	1,858	12,111
Levis	---	1,467	2,271	1,065	---	4,803	1,410	135	---	---	---	1,545	6,348
Montreal	50	57,608	264,344	182,065	14,854	518,921	245,114	67,279	24,567	4,467	2,772	344,199	863,120
Quebec	46	8,491	36,380	12,368	254	57,539	66,683	6,120	72	---	---	72,875	130,414
St. Hyacinthe	---	124	2,387	1,263	49	3,823	817	3,102	---	---	---	3,919	7,742
St. Jean (St. Johns)	---	393	1,700	1,180	83	3,356	885	592	---	---	---	1,477	4,833
Sherbrooke	---	869	6,341	3,905	1,900	13,015	4,256	3,866	---	---	---	8,122	21,137
Trois Rivieres	---	4,116	10,787	6,034	786	21,723	7,628	5,464	---	---	145	13,237	34,960
Valley Field	---	879	3,273	2,734	453	7,339	599	432	---	---	---	1,031	8,370
All other cities	---	16,510	71,456	35,183	1,704	124,853	41,708	33,455	28,279	6,875	11,975	122,292	247,145
Province Total	96	93,858	407,308	252,840	20,793	774,895	374,955	121,122	53,091	11,342	14,892	575,402	1,350,297
Other Provinces	---	32,233	27,103	39,276	1,744	100,356	11,302	5,054	---	---	19	16,375	116,731
Total Canada	18,519	545,379	1,637,157	1,300,053	127,292	3,628,400	522,391	189,201	55,155	11,680	16,894	795,321	4,423,721
Other Countries 1/	4,272	737,742	19,267	29,897	327,338	1,118,516	269,478	547,381	536,334	190,347	1,348,274	2,891,814	4,010,330
Grand Total	182,092	3,248,909	10,492,218	12,781,800	4,916,207	31,621,226	7,220,280	4,261,799	5,781,586	3,151,426	3,326,027	23,741,118	55,362,344

1/ Total compiled from data of the United States Department of Commerce. Size totals estimated from information furnished by shippers and representatives of the purchasing countries. See table 2 on page 4 for countries of destination.

TRUCK SHIPMENTS

DISTRIBUTION OF PENNSYLVANIA ANTHRACITE FOR THE COAL YEAR, APRIL 1, 1947 TO MARCH 31, 1948

Destinations	Domestic sizes						Steam sizes						Total All Sizes
	Broken	Egg	Stove	Chestnut	Pea	Total Domestic	Buckwheat No. 1	Rice	Barley	Buckwheat No. 4	All Other Sizes	Total Steam	
Delaware----------------	----	704	8,301	15,458	1,464	25,927	887	252	----	28	----	1,167	27,094
Maryland----------------	----	1,393	15,461	15,034	2,444	34,332	1,973	322	27	----	----	2,322	36,654
New Jersey--------------	31	5,595	126,962	255,509	56,155	444,252	38,547	21,440	9,905	21	----	69,913	514,165
New York----------------	----	3,504	139,680	181,989	48,486	373,659	61,269	13,822	102	----	----	75,193	448,852
Pennsylvania: (Outside "Local Sales" area)----	2,885	23,685	375,347	954,179	513,120	1,869,216	352,950	238,675	266,603	134,515	534,741	1,527,484	3,396,700
Local Sales ----------	28,539	9,086	138,051	827,213	1,277,516	2,280,405	539,069	345,923	278,463	561,540	32,872	1,757,867	4,038,272
Total Pennsylvania---	31,424	32,771	513,398	1,781,392	1,790,636	4,149,621	892,019	584,598	545,066	696,055	567,613	3,285,351	7,434,972
Other States------------	----	59	4,070	9,231	602	13,962	559	226	----	----	12	797	14,759
Total Truck----------	31,455	44,026	807,872	2,258,613	1,899,787	5,041,753	995,254	620,660	555,100	696,104	567,625	3,434,743	8,476,496

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FOR RELEASE SEPTEMBER 9, 1948

MINERAL MARKET REPORT
M.M.S. NO. 1652

DISTRIBUTION
OF
OVEN AND BEEHIVE COKE
IN
1947

Prepared by Nell S. Woodell, J. A. DeCarlo, and J. A. Corgan, Chief, Anthracite and Coke Section, under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

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Table 4 - Destination of coke produced 23-34

INTRODUCTION

This, the twelfth annual report published by the Bureau of Mines, United States Department of the Interior on the distribution of oven and beehive coke during the calendar year 1947 was made possible by the cooperation of the producers of coke, who voluntarily supplied data on the distribution of their product according to geographic areas and principal uses. It is to be noted that this report covers oven and beehive coke and breeze only and does not include low- and medium-temperature, coal-gas retort, petroleum, or coal-tar pitch cokes. Presentation of data in this report is substantially the same as that employed in previous years. The accompanying tables show, by major uses, total oven and beehive coke and coke breeze consumed in each State; tonnages of coke consumed in each State grouped in nine geographic regions; and the origin and destination of shipments. These summaries are, therefore, indicative of the approximate size and nature of the market for coke in given States as well as principal sources and respective consuming areas they serve. All tonnage figures are in net tons of 2,000 pounds.

SUMMARY

The total movement of large coke from ovens in 1947, as reported by producers fell short 280,256 net tons of equaling the 1944 wartime record but was 26 percent higher than the 1946 total. The metallurgical grades (blast furnace and foundry) were in extremely heavy demand because of the high level of operations in the iron and steel industry and total shipments to iron blast furnaces were the highest on record and foundry cupolas received the largest tonnage in 30 years. The quantity of coke that moved to blast furnaces in 1947 was equivalent to 79 percent of the total deliveries and foundry cupolas used about 5 percent (figure 1). Shortages of metallurgical grades of coke in 1947 were further aggravated by the deterioration in quality which has occurred since the beginning of World War II, causing, in turn, a steady decline in the fuel efficiency of blast furnaces, the largest consumers. Based on information furnished by the American Iron and Steel Institute, blast furnaces used 154.8 pounds more coke to produce one ton of pig iron in 1947 than they did in 1941. This would indicate that with all other conditions the same, approximately 4,500,000 tons more coke was required to supply the needs of the furnaces in 1947 than would have been necessary if they had operated at the 1941 rate of fuel efficiency. Foundry men, no doubt, also found it necessary to use more coke per ton of metal charged into cupolas in 1947 than was required before the war. According to a one-time survey made by the Bureau of Mines covering the month of March 1948, gray iron foundries used 1 part of coke to 5.96 parts of metal, a rather high ratio of coke to metal melted. There has been a significant increase in recent years in the quantity of coke used for the manufacture of gas, both for use as fuel and for chemical synthesis. In 1947, the quantity of coke used for the manufacture of producer gas and water gas combined amounted to 6 percent of all shipments of large coke and the physical volume was 20 percent higher than in 1946 and nearly 59 percent above the quantity used for this purpose in 1941. Coke used for other industrial purposes (nonferrous smelting operations, chemical process industries, and other miscellaneous industrial purposes) accounted for 4 percent of the total movement and the tonnage involved was 24 percent more than in 1946. The continued large requirements of coke for metallurgical and industrial purposes curtailed its use for domestic heating drastically in 1947 and total shipments to the domestic coke trade were the lowest since 1922, representing but 5 percent of all coke distributed. The shrinkage of the domestic coke market is clearly illustrated in figure 1.

CONSUMPTION BY STATES

The leading coke consuming States are naturally those that have the greatest concentration of blast furnaces. Because of this fact, Pennsylvania continued to lead all States in the consumption of coke, accounting for 27 percent of the total National consumption in 1947. Ohio maintained its position behind Pennsylvania, consuming 17 percent of the total, followed by Indiana with 9 percent, New York and Illinois with 8 percent each, and Alabama 7 percent.

In 1947, 18 States shared in the record consumption of coke in iron blast furnaces, one more than in 1946, with Pennsylvania consuming 31 percent of the total so used in the United States. Ohio ranked second to Pennsylvania, accounting for 19 percent of the total and the States of Indiana, Illinois, and Alabama combined used 28 percent. All States except Nevada and Wyoming used coke in foundry cupolas with Michigan alone accounting for almost one-sixth of the total foundry coke shipments. Among the 10 States using coke for the manufacture of producer gas, New York consumed 39 percent. New York and West Virginia together consumed about 50 percent of all coke delivered to 31 States for the manufacture of water gas. Significant tonnages of water-gas coke were also used in New Jersey, Virginia, and Ohio, the aggregate of which represented 26 percent of the total. Only one State did not receive any coke for "other industrial use", indicating widespread usage of coke under this classification. Coke was used for household or domestic heating in all but 9 States with the States of New York, New Jersey, Massachusetts, and Michigan accounting for 51 percent of the total.

COMPARATIVE CONSUMPTION 1940-1947

Trends in regional consumption of coke since 1936 are clearly illustrated in figure 2 and shifts in consumption, by uses, since 1940, in each State of the 9 geographic regions are shown in table 2. The Southwest, Mountain, and Pacific Region, with new coking facilities built in Texas, Colorado, Utah, and California to supply metallurgical fuel to the Western iron and steel industry showed the largest increase in the use of coke with a gain of 177 percent over 1940. This region which consumed only 1.4 percent of the total National consumption in 1936 used 3.7 percent in 1947 (figure 2). The Southeast Region ranked second with an advance of 51 percent over 1940, principally because of substantial increases in the consumption of "blast furnace" and "other industrial" coke in West Virginia, Alabama, Tennessee, and Kentucky. As indicated in figure 2, this region has shown the largest increase when measured in terms of National consumption, advancing from 10.1 percent of the total in 1936 to 14.3 percent in 1947. The Middle Atlantic Region continues to dominate all other geographic areas in consumption, accounting for 40 percent of the total in 1947. Tonnagewise, this region registered the largest increase over 1940 with a gain of 4,973,855 tons (20.6 percent), most of which was used in blast furnaces. The Illinois-Indiana Region moved ahead of the Ohio Region in coke consumption and accounted for 17.3 percent of the total compared with 16.5 percent for Ohio. The steady decline in the use of coke for domestic heating in the New England, Michigan, and Missouri Valley Regions since 1940 was the principal factor in the decreases in total consumption in these regions in 1947.

SOURCES OF COKE CONSUMED IN EACH STATE

These summaries are designed to show in detail the extent of the coke market in each State by major uses and to indicate the producing States serving these markets. The Bureau of Mines is not at liberty to publish certain data in the detail that such a table outlines since in cases where less than three producers are involved express permission of the producer or producers governs the extent of detailed presentation.

Ohio moved ahead of Illinois in 1947 as the leading consumer of out-of-State coke, receiving 2,682,974 tons, or 22.3 percent, of all coke used within the State. Pennsylvania was the leading supplier and shipped 84.9 percent of all coke received from surrounding States. Illinois ranked second in total out-of-State receipts, obtaining 2,362,439 tons from 11 other States, with Indiana-Kentucky together furnishing 34.7 percent, most of which was used in blast furnaces. Maryland was the only other State receiving more than half a million tons from other States, the bulk of which was obtained from Pennsylvania. Significant tonnages of out-of-State coke were received by West Virginia and New York, both of which received more than 400,000 tons from neighboring States. Of the producing States, Virginia received the largest percentage of out-of-State receipts, with 69.3 percent of her total consumption coming from 7 other States.

DISTRIBUTION OF COKE PRODUCED IN EACH STATE

Although interstate shipments of coke in the aggregat represent considerable tonnages, usually between 80 and 90 percent of the coke produced in a State is used within its borders.

Pennsylvania, the leading producing State, likewise led in interstate shipments, sending more than 2,380,000 tons (10.6 percent of the total output) to 26 other States and the District of Columbia. Indiana and Kentucky combined, followed closely, sending 2,365,913 tons (24.6 percent of total output) to 22 States with Illinois receiving 21.3 percent of the total shipments. This large movement is due to the relative locations of coking plants and steel mills in the Chicago District. Coke shipments from Alabama were the most widespread, extending to 30 other States and in addition, 20,014 tons were exported. However, the shipments were of relatively small tonnages as the total amount shipped represented only 9.4 percent of the State's production. According to producers' reports, New York was the principal exporting State, accounting for 35 percent of the total reported shipments to foreign countries. West Virginia, which before World War II usually shipped about one-half of its production or more than a million tons annually to other States shipped only 25.6 percent of its production in 1947 or about 800,000 tons. The only other State that shipped more than a half million tons to neighboring States in 1947 was Ohio.

SCREENINGS OR BREEZE

The preceding discussion relates to large coke only and does not consider screenings or breeze. As breeze has a lower value per ton, its movement is more restricted and most of the 5,365,220 tons distributed was used not far from producing plants. For this reason Pennsylvania, Ohio, Indiana, and New York, the leading producing States were the leading consumers of breeze and accounted for 58 percent of the total tonnage distributed. Reports submitted by producers indicated that 65.7 percent of the total breeze distributed was used for raising steam, less than 1 percent for making producer gas, and 33.5 percent for other industrial purposes.

EXPORTS OF COKE AND BREEZE

Exports of coke and coke breeze in 1947, as reported by producers, decreased 8.9 percent from 1946 and totaled 605,632 tons. As in previous surveys, exports of coke reported by producers were considerably lower than the foreign shipments reported to the United States Department of Commerce by producers and wholesalers. The demand for coke in virtually all foreign countries in 1947 exceeded the supply, and exports from the United States would have been much greater had more coke been available in this country. Canada, as in previous years, was the principal foreign market for American coke, receiving 80 percent of all exports. Exports to Canada, however, were 14.9 percent below the 1946 total. The distribution, by major uses, and final destinations of coke exports for the years 1940 and 1945-47 are shown below.

OVEN AND BEEHIVE COKE AND BREEZE EXPORTED BY PRODUCERS, 1940 AND 1945-47, BY USES, IN NET TONS

Uses	1940	1945	1946	1947
Furnace	81,627	31,094	37,126	9,082
Foundry	98,337	165,894	149,978	167,367
Other industrial, including water gas	190,317	257,066	193,448	165,446
Domestic	303,796	450,401	255,323	231,316
Breeze	46,498	59,663	29,176	32,421
	720,575	964,118	665,051	605,632

OVEN AND BEEHIVE COKE AND BREEZE EXPORTED BY PRODUCERS, 1940 AND 1945-47, BY DESTINATION, IN NET TONS

Destination	1940	1945	1946	1947
North America:				
Canada	640,888	805,371	572,602	487,085
Mexico	16,908	7,527	6,063	19,664
West Indies	24,299	33,902	20,259	14,362
Other North America	48	- - -	- - -	- - -
Central America	229	105	- - -	- - -
South America	6,173	8,277	10,249	14,563
Europe	14,350	28,406	20,258	54,936
Africa	- - -	609	- - -	- - -
Hawaii and the Philippines	3,132	- - -	- - -	- - -
Unknown	14,548	79,921	35,620	15,022
	720,575	964,118	665,051	605,632

FIG. 1-PERCENTAGE DISTRIBUTION OF OVEN AND BEEHIVE COKE BY PRINCIPAL USES 1936-47 (EXCLUSIVE OF BREEZE)

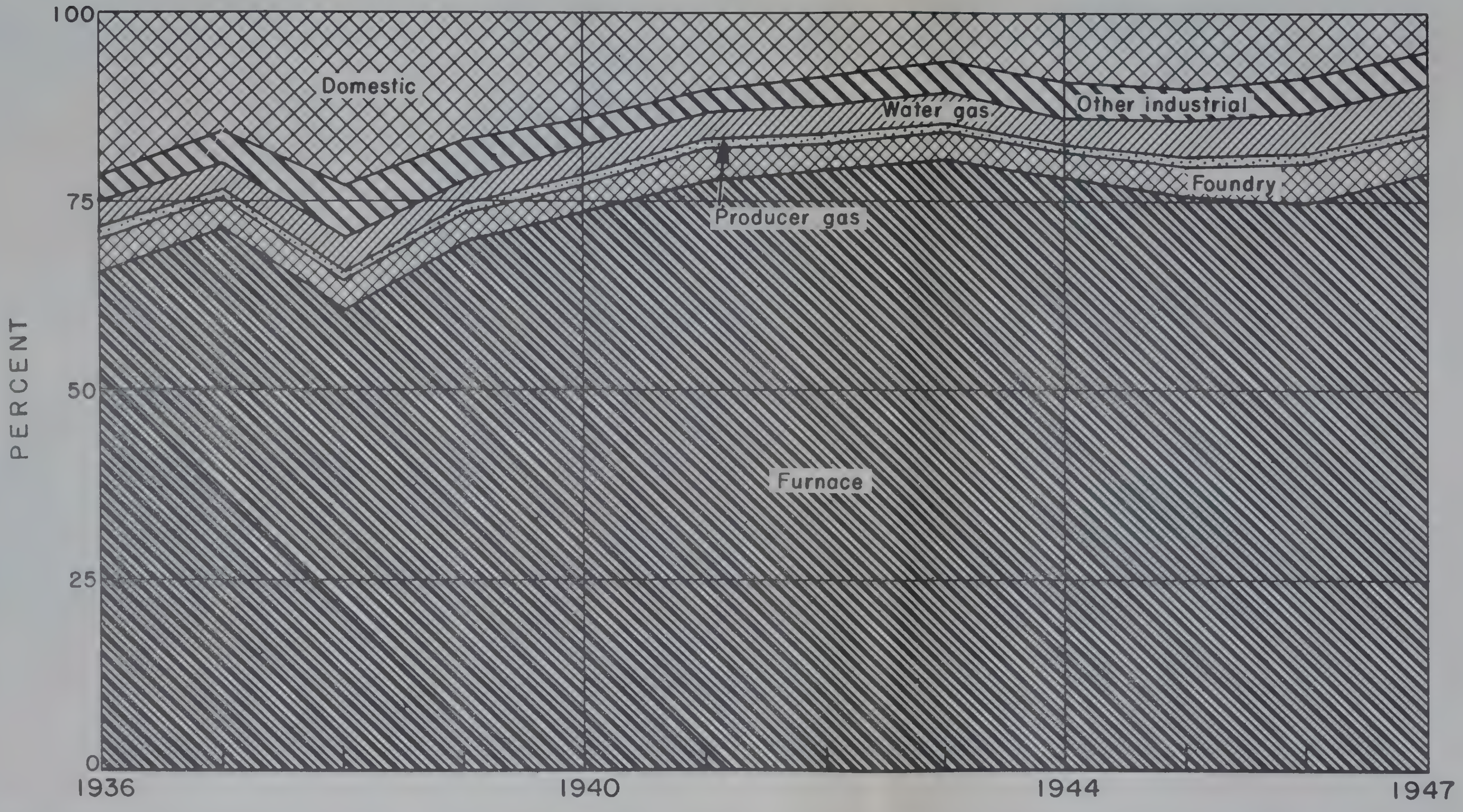
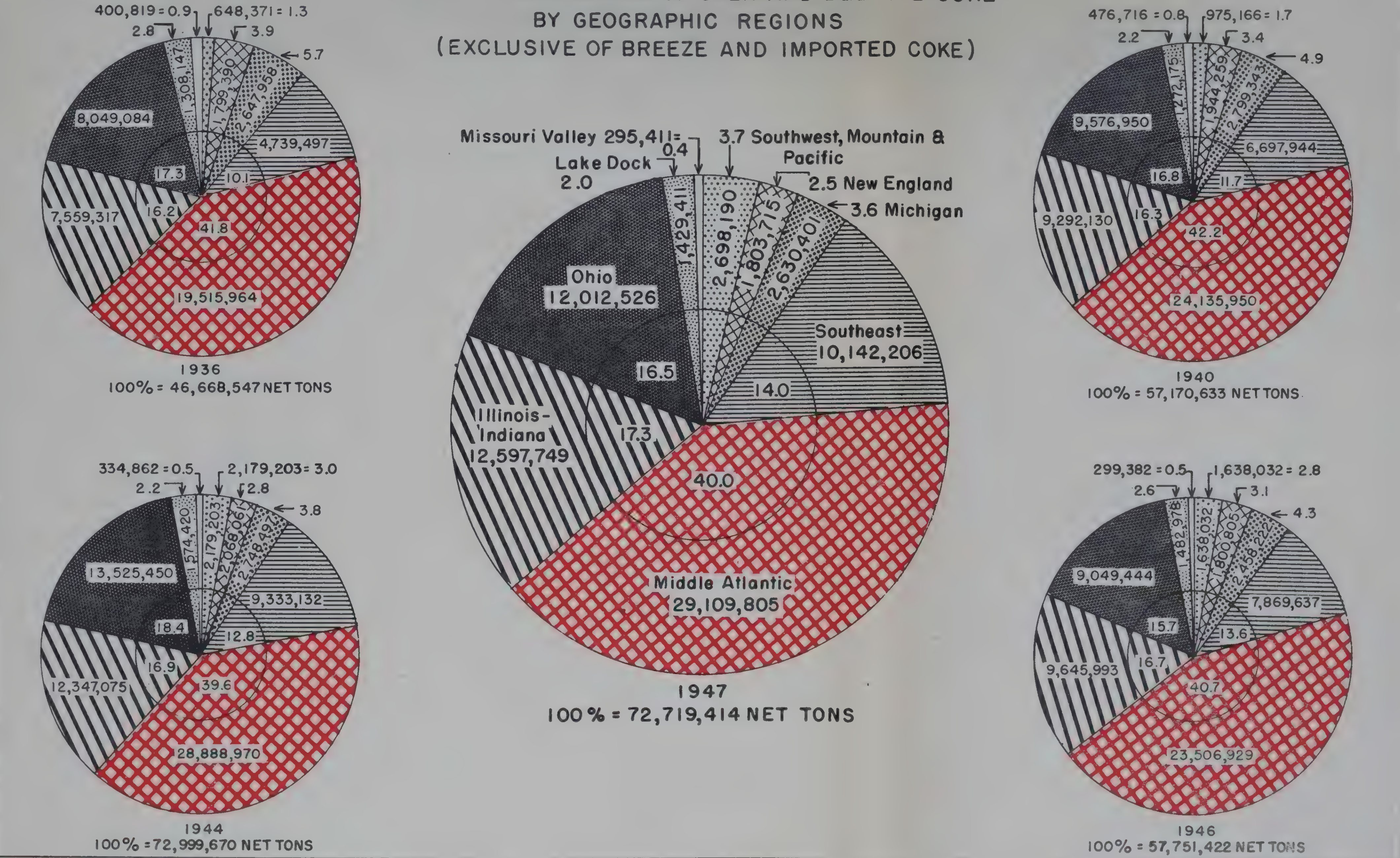


FIG. 2 - DISTRIBUTION OF OVEN AND BEEHIVE COKE BY GEOGRAPHIC REGIONS (EXCLUSIVE OF BREEZE AND IMPORTED COKE)



1936
100% = 46,668,547 NET TONS

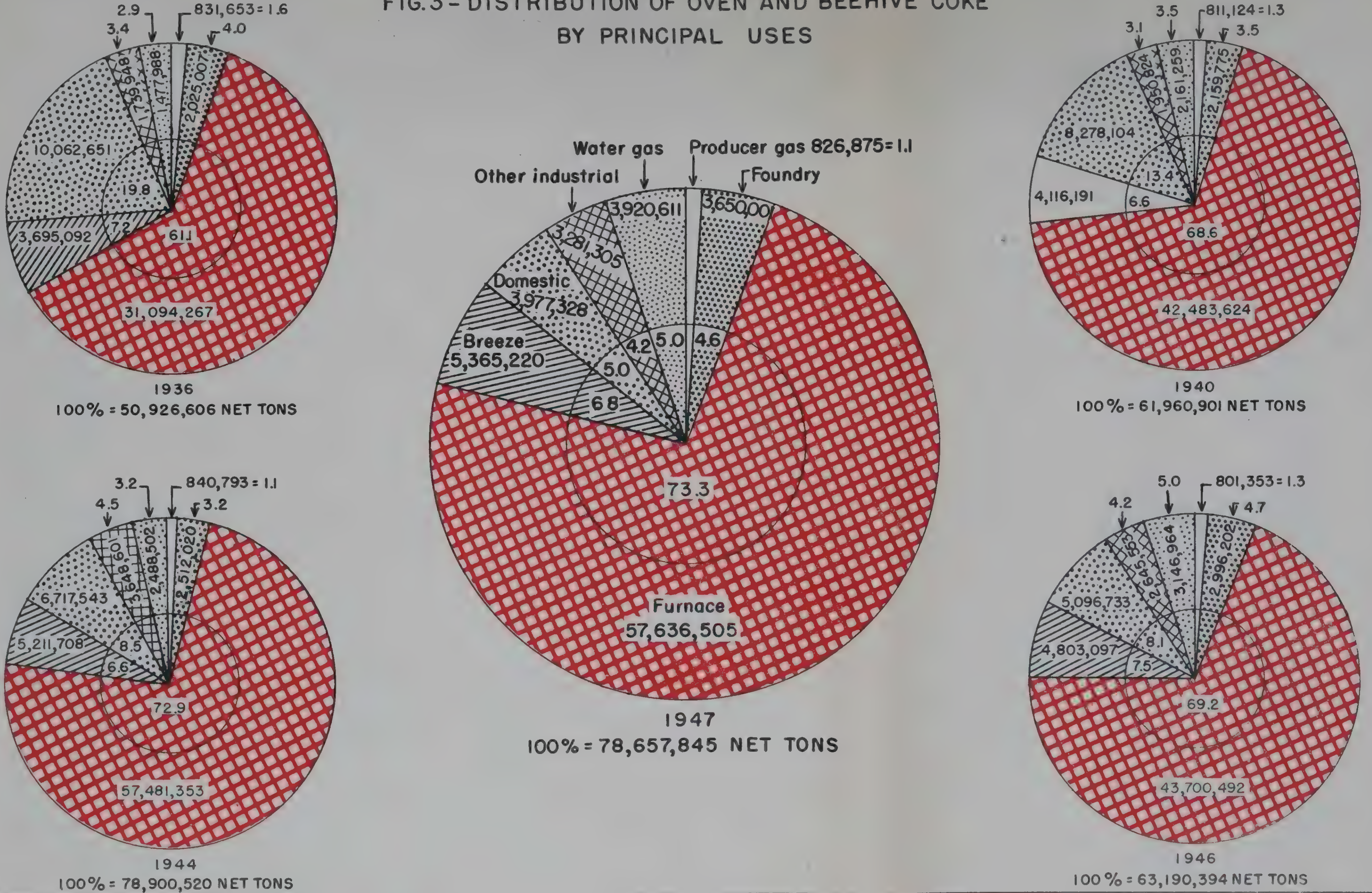
1947
100% = 72,719,414 NET TONS

1940
100% = 57,170,633 NET TONS

1944
100% = 72,999,670 NET TONS

1946
100% = 57,751,422 NET TONS

FIG. 3 - DISTRIBUTION OF OVEN AND BEEHIVE COKE BY PRINCIPAL USES



1936
100% = 50,926,606 NET TONS

1947
100% = 78,657,845 NET TONS

1940
100% = 61,960,901 NET TONS

1944
100% = 78,900,520 NET TONS

1946
100% = 63,190,394 NET TONS

TABLE 1. - Oven and beehive coke and breeze distributed to each State in 1947, in net tons.
(Based upon reports from all United States producers showing destination of coke used by producer or sold in 1947. Does not include imported coke which totaled 104,093 tons in 1947)

Consuming State	Coke							Coke breeze
	Furnace use	Foundry use	Making producer gas	Making water gas	Other industrial use	Domestic use	Total	
Alabama ----------------	4,878,979	211,721	-------	646	196,946	84,515	5,372,807	220,460
Arizona ----------------	----------	4,921	-------	---------	751	---------	5,672	---------
Arkansas ---------------	----------	1,009	-------	---------	108	36	1,153	---------
California -------------	325,570	70,078	-------	---------	82,824	---------	478,472	32,760
Colorado ---------------	792,469	16,259	-------	---------	44,795	828	854,351	97,131
Connecticut ------------	----------	53,631	60,805	126,172	36,341	127,166	404,115	36,451
Delaware ---------------	----------	4,267	-------	303	3,261	395	8,226	1,317
District of Columbia ---	----------	64	-------	22,362	25	---------	22,451	---------
Florida ----------------	----------	2,098	-------	43,772	2,375	2,506	50,751	3,524
Georgia ----------------	----------	21,993	-------	12,570	17,150	10,630	62,343	2,943
Idaho ------------------	----------	103	-------	---------	3,371	340	3,814	64
Illinois ---------------	5,195,610	316,499	11,909	42,060	120,336	197,628	5,884,042	336,167
Indiana ----------------	6,060,216	181,229	24,375	44,710	220,650	182,527	6,713,707	504,061
Iowa -------------------	----------	70,269	-------	1,178	26,814	3,314	101,575	8,011
Kansas -----------------	----------	15,711	-------	---------	895	211	16,817	4,447
Kentucky ---------------	693,967	29,650	-------	73,177	18,118	39,892	854,804	49,366
Louisiana --------------	----------	9,928	-------	---------	50,059	2,209	62,196	62
Maine ------------------	----------	9,583	-------	14,132	---------	33,139	56,854	---------
Maryland ---------------	2,328,795	39,298	-------	429	119,131	730	2,488,383	173,308
Massachusetts ----------	185,963	75,433	112,806	178,675	31,232	537,289	1,121,398	121,947
Michigan ---------------	1,272,467	626,143	-------	27,542	314,323	389,926	2,630,401	215,892
Minnesota --------------	540,485	44,275	6,144	11,187	53,996	178,808	834,895	104,558
Mississippi ------------	----------	1,528	-------	---------	347	627	2,502	40
Missouri ---------------	----------	86,204	-------	7,040	45,427	22,173	160,844	9,074
Montana ----------------	----------	1,596	-------	---------	19,015	---------	20,611	28,114
Nebraska ---------------	----------	5,042	-------	7,300	3,380	453	16,175	74
Nevada -----------------	----------	---------	-------	---------	6,811	---------	6,811	---------
New Hampshire ----------	----------	6,968	-------	63	90	34,607	41,728	---------

TABLE 1 - Oven and beehive coke and breeze distributed to each State in 1947, in net tons. (Continued)

Consuming State	Coke							Coke breeze
	Furnace use	Foundry use	Making producer gas	Making water gas	Other industrial use	Domestic use	Total	
New Jersey	----------	118,996	96,874	388,217	112,629	406,721	1,123,437	130,546
New Mexico	----------	330	----------	----------	3,442	----------	3,772	----------
New York	3,471,176	172,990	320,502	1,024,942	420,984	693,287	6,103,881	466,809
North Carolina	----------	15,980	----------	2,951	3,146	4,261	26,338	599
North Dakota	----------	153	----------	----------	415	606	1,174	----------
Ohio	10,892,890	358,625	----------	281,087	281,136	198,788	12,012,526	805,504
Oklahoma	----------	4,460	----------	----------	78	35	4,573	17,120
Oregon	----------	5,885	----------	----------	14,059	----------	19,944	----------
Pennsylvania	18,034,062	416,535	87,221	236,881	369,125	219,603	19,363,427	1,347,511
Rhode Island	----------	14,584	33,615	16,851	1,124	87,954	154,128	20,938
South Carolina	----------	5,647	----------	1,920	2,233	6,293	16,093	3,965
South Dakota	----------	243	----------	----------	216	1,059	1,518	----------
Tennessee	107,285	111,385	----------	3,466	104,715	6,947	333,798	143,706
Texas	148,879	49,299	----------	1,226	79,483	79	278,966	7,879
Utah	861,136	11,955	----------	----------	64,569	4,357	942,017	106,611
Vermont	----------	7,526	----------	2,503	1,764	13,699	25,492	----------
Virginia	72,192	48,336	----------	353,669	98,252	351	572,800	1,145
Washington	----------	7,613	----------	----------	6,219	----------	13,832	----------
West Virginia	1,765,282	47,069	----------	925,951	110,717	951	2,849,970	204,022
Wisconsin	----------	179,523	72,624	66,825	21,780	251,072	591,824	126,673
Wyoming	----------	----------	----------	----------	2,006	----------	2,006	----------
	57,627,423	3,482,634	826,875	3,919,807	3,116,663	3,746,012	72,719,414	5,332,799
Exported	9,082	167,367	----------	804	164,642	231,316	573,211	32,421
	57,636,505	3,650,001	826,875	3,920,611	3,281,305	3,977,328	73,292,625	5,365,220

TABLE 2. - Comparative tonnage of oven and beehive coke consumed in each State, by regions, 1940 and 1947, in net tons.
(Exclusive of imported coke and of screenings or breeze)

Consuming region and State	Furnace use		Foundry use		Other industrial		Domestic use		Total		
	1940	1947	1940	1947	1940	1947	1940	1947	1940	1947	Increase or Decrease
NEW ENGLAND:											
Maine ----------------	----------	----------	2,956	9,583	2,181	14,132	49,473	33,139	54,610	56,854	+ 2,244
New Hampshire --------	----------	----------	1,443	6,968	1,616	153	55,709	34,607	58,768	41,728	- 17,040
Vermont --------------	----------	----------	5,433	7,526	3,291	4,267	32,587	13,699	41,311	25,492	- 15,819
Massachusetts --------	88,830	185,963	48,872	75,433	162,598	322,713	933,356	537,289	1,233,656	1,121,398	- 112,258
Connecticut ----------	----------	----------	34,847	53,631	128,140	223,318	203,534	127,166	366,521	404,115	+ 37,594
Rhode Island ---------	----------	----------	10,199	14,584	24,424	51,590	154,770	87,954	189,393	154,128	- 35,265
	88,830	185,963	103,750	167,725	322,250	616,173	1,429,429	833,854	1,944,259	1,803,715	- 140,544
MIDDLE ATLANTIC:											
New York -------------	2,615,108	3,471,176	141,372	172,990	1,383,937	1,766,428	1,563,584	693,287	5,704,001	6,103,881	+ 399,880
New Jersey -----------	----------	----------	86,161	118,996	433,524	597,720	488,890	406,721	1,008,575	1,123,437	+ 114,862
Pennsylvania ---------	14,319,836	18,034,062	219,232	416,535	313,431	693,227	537,204	219,603	15,389,703	19,363,427	+3,973,724
Delaware -------------	----------	----------	2,758	4,267	1,962	3,564	2,326	395	7,046	8,226	+ 1,180
Maryland -------------	1,849,917	2,328,795	23,891	39,298	57,437	119,560	28,050	730	1,959,295	2,488,383	+ 529,088
District of Columbia -	----------	----------	395	64	64,505	22,387	2,430	----------	67,330	22,451	- 44,879
	18,784,861	23,834,033	473,809	752,150	2,254,796	3,202,886	2,622,484	1,320,736	24,135,950	29,109,805	+4,943,855
OHIO -----------------	8,619,762	10,892,890	304,373	358,625	192,476	562,223	460,339	198,788	9,576,950	12,012,526	+2,475,576
MICHIGAN -------------	1,076,370	1,272,467	333,791	626,143	253,488	341,865	1,135,694	389,926	2,799,343	2,630,401	- 168,942
ILLINOIS-INDIANA:											
Illinois -------------	3,332,028	5,195,610	172,455	316,499	174,023	174,305	683,630	197,628	4,362,136	5,884,042	+1,521,906
Indiana --------------	4,305,518	6,060,216	106,063	181,229	137,587	289,735	380,826	182,527	4,929,994	6,713,707	+1,783,713
	7,637,546	11,255,826	278,518	497,728	311,610	464,040	1,064,456	380,155	9,292,130	12,597,749	+3,305,619
MISSOURI VALLEY:											
Missouri -------------	----------	----------	34,426	86,204	63,769	52,467	269,036	22,173	367,231	160,844	- 206,387
Iowa -----------------	----------	----------	33,721	70,269	31,186	27,992	10,915	3,314	75,822	101,575	+ 25,753
Nebraska -------------	----------	----------	2,320	5,042	20,177	10,680	819	453	23,316	16,175	- 7,141
Kansas ---------------	----------	----------	7,510	15,711	2,787	895	50	211	10,347	16,817	+ 6,470
	----------	----------	77,977	177,226	117,919	92,034	280,820	26,151	476,716	295,411	- 181,305

TABLE 2. - Comparative tonnage of oven and beehive coke consumed in each State, by regions, 1940 and 1947, in net tons (Continued)

Consuming region and State	Furnace use		Foundry use		Other industrial		Domestic use		Total		
	1940	1947	1940	1947	1940	1947	1940	1947	1940	1947	Increase or Decrease
LAKE DOCK:											
Wisconsin	------	------	99,327	179,523	120,925	161,229	432,778	251,072	653,030	591,824	- 61,206
Minnesota	225,569	540,485	15,684	44,275	42,003	71,327	331,682	178,808	614,938	834,895	+ 219,957
North Dakota	------	------	------	153	267	415	1,491	606	1,758	1,174	- 584
South Dakota	------	------	181	243	501	216	1,767	1,059	2,449	1,518	- 931
	225,569	540,485	115,192	224,194	163,696	233,187	767,718	431,545	1,272,175	1,429,411	+ 157,236
SOUTHEAST:											
Virginia	52,715	72,192	31,258	48,336	374,841	451,921	8,957	351	467,771	572,800	+ 105,029
West Virginia	787,694	1,765,282	12,657	47,069	474,713	1,036,668	4,369	951	1,279,433	2,849,970	+1,570,537
North Carolina	------	------	13,410	15,980	6,353	6,097	4,169	4,261	23,932	26,338	+ 2,406
South Carolina	------	------	3,613	5,647	2,736	4,153	3,160	6,293	9,509	16,093	+ 6,584
Georgia	------	------	13,765	21,993	10,957	29,720	15,478	10,630	40,200	62,343	+ 22,143
Florida	------	------	1,017	2,098	30,290	46,147	4,961	2,506	36,268	50,751	+ 14,483
Kentucky	221,698	693,967	20,341	29,650	12,532	91,295	41,993	39,892	296,564	854,804	+ 558,240
Tennessee	54,312	107,285	59,724	111,385	44,455	108,181	18,658	6,947	177,149	333,798	+ 156,649
Alabama	4,099,434	4,878,979	123,394	211,721	42,982	197,592	99,102	84,515	4,364,912	5,372,807	+1,007,895
Missippii	------	------	821	1,528	------	347	1,385	627	2,206	2,502	+ 296
	5,215,853	7,517,705	280,000	495,407	999,859	1,972,121	202,232	156,973	6,697,944	10,142,206	+3,444,262
SOUTHWEST, MOUNTAIN, AND PACIFIC:											
Louisiana	------	------	2,883	9,928	21,656	50,059	7,374	2,209	31,913	62,196	+ 30,283
Arkansas	------	------	1,444	1,009	567	108	38	36	2,049	1,153	- 896
Oklahoma	------	------	2,205	4,460	172	78	19	35	2,396	4,573	+ 2,177
Texas	------	148,879	15,991	49,299	31,409	80,709	225	79	47,625	278,966	+ 231,341
New Mexico	------	------	1,018	330	219	3,442	------	------	1,237	3,772	+ 2,535
Arizona	------	------	4,053	4,921	140	751	155	------	4,348	5,672	+ 1,324
Colorado	521,698	792,469	11,604	16,259	12,391	44,795	201	828	545,894	854,351	+ 308,457
Utah	163,790	861,136	10,337	11,955	55,234	64,569	2,113	4,357	231,474	942,017	+ 710,543
Nevada	------	------	28	------	29	6,811	------	------	57	6,811	+ 6,754
Wyoming	------	------	------	------	2,470	2,006	2	------	2,472	2,006	- 466
Montana	------	------	2,060	1,596	22,733	19,015	------	------	24,793	20,611	- 4,182
Idaho	------	------	69	103	3,831	3,371	------	340	3,900	3,814	- 86
Washington	------	------	3,089	7,613	1,609	6,219	21	------	4,719	13,832	+ 9,113
Oregon	------	------	2,821	5,885	1,788	14,059	------	------	4,609	19,944	+ 15,335
California	------	325,570	36,426	70,078	30,266	82,824	988	------	67,680	478,472	+ 410,792
	685,488	2,128,054	94,028	183,436	184,514	378,816	11,136	7,884	975,166	2,698,190	+1,723,024

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
NEW ENGLAND REGION												
MAINE:												
From New England	---	---	9,583	---	14,132	---	32,577	---	56,292	---	56,292	---
Pennsylvania	---	---	---	---	---	---	---	524	---	524	524	---
West Virginia	---	---	---	---	---	---	38	---	38	---	38	---
	---	---	9,583	---	14,132	---	32,615	524	56,330	524	56,854	---
NEW HAMPSHIRE:												
From New England	---	---	6,968	---	63	---	28,060	---	35,091	---	35,091	---
N. J. and N. Y.	---	---	---	---	90	---	3,613	---	3,703	---	3,703	---
Pennsylvania	---	---	---	---	---	---	---	2,934	---	2,934	2,934	---
	---	---	6,968	---	153	---	31,673	2,934	38,794	2,934	41,728	---
VERMONT:												
From New England	---	---	7,526	---	195	---	3,048	---	10,769	---	10,769	---
N. J. and N. Y.	---	---	---	---	4,034	---	9,287	---	13,321	---	13,321	---
Pennsylvania	---	---	---	---	---	38	---	1,364	---	1,402	1,402	---
	---	---	7,526	---	4,229	38	12,335	1,364	24,090	1,402	25,492	---
MASSACHUSETTS:												
From New England	185,963	---	75,433	---	310,763	---	523,094	---	1,095,253	---	1,095,253	121,849
N. J. and N. Y.	---	---	---	---	11,748	---	3,276	---	15,024	---	15,024	---
Pennsylvania	---	---	---	---	35	167	3,766	5,726	3,801	5,893	9,694	98
West Virginia	---	---	---	---	---	---	1,427	---	1,427	---	1,427	---
	185,963	---	75,433	---	322,546	167	531,563	5,726	1,115,505	5,893	1,121,398	121,947
RHODE ISLAND:												
From New England	---	---	14,584	---	51,590	---	87,954	---	154,128	---	154,128	20,938
CONNECTICUT:												
From New England	---	---	52,099	---	223,188	---	126,810	---	402,097	---	402,097	36,251
N. J. and N. Y.	---	---	---	---	130	---	39	---	169	---	169	---
Pennsylvania	---	---	---	1,532	---	---	---	317	---	1,849	1,849	200
	---	---	52,099	1,532	223,318	---	126,849	317	402,266	1,849	404,115	36,451

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
MIDDLE ATLANTIC REGION												
NEW YORK:												
From Alabama	-	-	360	-	-	-	-	-	360	-	360	-
Illinois	-	-	995	-	-	-	-	-	995	-	995	-
Mich. and Wis.	68,793	-	52,165	-	18,844	-	-	-	139,802	-	139,802	3,399
Missouri	-	-	75	-	-	-	-	-	75	-	75	-
New England	-	-	22,855	-	158	-	33	-	23,046	-	23,046	-
N. J. and N. Y.	3,280,142	-	9,074	-	1,727,165	-	671,553	-	5,687,934	-	5,687,934	432,258
Ohio	-	-	28,750	-	1,512	-	-	-	30,262	-	30,262	14,113
Pennsylvania	-	100,095	41,385	16,386	1,940	15,994	12,188	8,728	55,513	141,203	196,716	16,969
Virginia	-	-	-	23	-	-	-	-	-	23	23	-
West Virginia	21,200	946	888	34	692	123	785	-	23,565	1,103	24,668	70
	3,370,135	101,041	156,547	16,443	1,750,311	16,117	684,559	8,728	5,961,552	142,329	6,103,881	466,809
NEW JERSEY:												
From Alabama	-	-	613	-	-	-	-	-	613	-	613	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	8,164
Mich. and Wis.	-	-	121	-	-	-	-	-	121	-	121	164
Missouri	-	-	-	-	69	-	-	-	69	-	69	-
N. J. and N. Y.	-	-	48,700	-	551,809	-	387,811	-	988,320	-	988,320	122,174
Pennsylvania	-	-	47,423	15,316	34,228	7,552	18,545	111	100,196	22,979	123,175	44
West Virginia	-	-	6,523	300	2,712	1,350	254	-	9,489	1,650	11,139	-
	-	-	103,380	15,616	588,818	8,902	406,610	111	1,098,808	24,629	1,123,437	130,546
PENNSYLVANIA:												
From Alabama	-	-	611	-	-	-	-	-	611	-	611	-
Illinois	-	-	9,568	-	-	-	-	-	9,568	-	9,568	-
Indiana	-	-	1,406	-	-	-	-	-	1,406	-	1,406	-
Mich. and Wis.	-	-	1,520	-	-	-	-	-	1,520	-	1,520	1,057
Maryland	-	-	-	-	-	-	-	-	-	-	-	75
Missouri	-	-	194	-	-	-	-	-	194	-	194	-
New England	-	-	2,110	-	8,779	-	-	-	10,889	-	10,889	-
N. J. and N. Y.	22,840	-	597	-	42	-	391	-	23,870	-	23,870	-
Ohio	6,899	-	15,691	-	879	-	524	-	23,993	-	23,993	-
Pennsylvania	14,749,607	3,111,177	112,747	177,629	450,761	183,325	195,276	7,251	15,508,391	3,479,382	18,987,773	1,332,119
Virginia	-	-	-	1,101	-	-	-	-	-	1,101	1,101	-
West Virginia	106,690	36,849	88,648	4,713	47,856	1,585	16,161	-	259,355	43,147	302,502	14,260
	14,886,036	3,148,026	233,092	183,443	508,317	184,910	212,352	7,251	15,839,797	3,523,630	19,363,427	1,347,511
DELAWARE:												
From Pennsylvania	-	-	3,605	662	3,177	387	395	-	7,177	1,049	8,226	1,317

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
MIDDLE ATLANTIC REGION: (Continued)												
MARYLAND:												
From Alabama	-	-	758	-	-	-	-	-	758	-	758	-
Maryland	1,973,545	-	78	-	232	-	-	-	1,973,855	-	1,973,855	162,678
Pennsylvania	42,966	283,299	21,071	13,099	41,270	67,061	302	428	105,609	363,887	469,496	10,630
Virginia	-	-	-	412	-	-	-	-	-	412	412	-
West Virginia	-	28,985	960	2,920	8,484	2,513	-	-	9,444	34,418	43,862	-
	2,016,511	312,284	22,867	16,431	49,986	69,574	302	428	2,089,666	398,717	2,488,383	173,308
DISTRICT OF COLUMBIA:												
From Pennsylvania	-	-	64	-	25	22,362	-	-	89	22,362	22,451	-
OHIO REGION												
OHIO:												
From Alabama	3,880	-	19,185	-	716	-	-	-	23,781	-	23,781	-
Colorado	-	-	-	-	33	-	-	-	33	-	33	-
Illinois	22,191	-	12,872	-	531	-	-	-	35,594	-	35,594	-
Ind. and Ky.	-	-	30,939	-	183	-	3,004	-	34,126	-	34,126	3,188
Mich. and Wis.	98,462	-	118,533	-	7,998	-	-	-	224,993	-	224,993	254
Minnesota	-	-	30	-	1,001	-	-	-	1,031	-	1,031	-
Missouri	-	-	66	-	-	-	-	-	66	-	66	-
N. J. and N. Y.	2,872	-	-	-	38,213	-	-	-	41,085	-	41,085	-
Ohio	8,523,676	-	143,505	-	488,862	-	173,509	-	9,329,552	-	9,329,552	796,307
Pennsylvania	579,673	1,369,526	9,442	17,169	8,753	13,644	2,747	16,725	600,615	1,417,064	2,017,679	4,859
Tennessee	2,390	-	-	-	-	-	-	-	2,390	-	2,390	-
Virginia	-	-	-	2,097	-	-	-	-	-	2,097	2,097	-
West Virginia	186,682	103,538	621	4,166	372	1,917	2,803	-	190,478	109,621	300,099	896
	9,419,826	1,473,064	335,193	23,432	546,662	15,561	182,063	16,725	10,483,744	1,528,782	12,012,526	805,504
MICHIGAN REGION												
MICHIGAN:												
From Alabama	-	-	42,475	-	-	-	367	-	42,842	-	42,842	-
Illinois	-	-	73,990	-	6,004	-	1,181	-	81,175	-	81,175	790
Ind. and Ky.	-	-	82,971	-	1,833	-	6,162	-	90,966	-	90,966	5,821
Mich. and Wis.	1,255,451	-	343,724	-	241,787	-	309,218	-	2,150,180	-	2,150,180	208,996
Minnesota	-	-	643	-	637	-	117	-	1,397	-	1,397	-
Missouri	-	-	76	-	-	-	-	-	76	-	76	-
N. J. and N. Y.	-	-	-	-	58,151	-	24,194	-	82,345	-	82,345	-
Ohio	-	-	43,397	-	29	-	5,366	-	48,792	-	48,792	-
Pennsylvania	-	930	1,027	13,343	11,478	19,804	9,071	4,696	21,576	38,773	60,349	285
Virginia	-	-	-	1,001	-	-	-	-	-	1,001	1,001	-
West Virginia	16,086	-	-	23,496	-	2,142	29,015	539	45,101	26,177	71,278	-
	1,271,537	930	588,303	37,840	319,919	21,946	384,691	5,235	2,564,450	65,951	2,630,401	215,892

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
ILLINOIS-INDIANA REGION												
ILLINOIS:												
From Alabama	---	---	5,637	---	315	---	14,952	---	20,904	---	20,904	---
Colorado	---	---	---	---	---	725	---	---	---	725	725	---
Illinois	3,135,661	---	147,774	---	127,322	---	110,846	---	3,521,603	---	3,521,603	263,812
Ind. and Ky.	1,865,583	---	99,385	---	28,593	---	48,271	---	2,041,832	---	2,041,832	65,151
Mich. and Wis.	111,313	---	20,329	---	870	---	12,518	---	145,030	---	145,030	1,282
Minnesota	52,835	---	---	---	1,569	---	1,096	---	55,500	---	55,500	---
Missouri	11,918	---	36,497	---	3,800	---	369	---	52,584	---	52,584	5,922
Ohio	1,823	---	---	---	5,291	---	---	---	7,114	---	7,114	---
Pennsylvania	---	9,922	---	6,351	2,603	2,993	1,658	4,644	4,261	23,910	28,171	---
Tennessee	4,732	---	---	---	---	---	---	---	4,732	---	4,732	---
Virginia	---	---	---	126	---	67	---	---	---	193	193	---
West Virginia	---	1,823	---	400	157	---	3,274	---	3,431	2,223	5,654	---
	5,183,865	11,745	309,622	6,877	170,520	3,785	192,984	4,644	5,856,991	27,051	5,884,042	336,167
INDIANA:												
From Alabama	---	---	2,272	---	651	---	585	---	3,508	---	3,508	---
Colorado	---	---	---	---	---	1,003	---	---	---	1,003	1,003	---
Illinois	77	---	27,149	---	6,230	---	844	---	34,300	---	34,300	27,718
Ind. and Ky.	5,978,145	---	116,570	---	261,339	---	157,725	---	6,513,779	---	6,513,779	474,522
Mich. and Wis.	81,015	---	19,745	---	11,477	---	---	---	112,237	---	112,237	---
Missouri	---	---	67	---	---	---	---	---	67	---	67	---
Ohio	---	---	12,734	---	7,175	---	21,922	---	41,831	---	41,831	1,821
Pennsylvania	---	64	---	2,295	1,860	---	975	179	2,835	2,538	5,373	---
Tennessee	---	---	191	---	---	---	---	---	191	---	191	---
Virginia	---	488	---	139	---	---	---	---	---	627	627	---
West Virginia	---	427	---	67	---	---	297	---	297	494	791	---
	6,059,237	979	178,728	2,501	288,732	1,003	182,348	179	6,709,045	4,662	6,713,707	504,061
MISSOURI VALLEY REGION												
MISSOURI:												
From Alabama	---	---	3,520	---	406	---	---	---	3,926	---	3,926	---
Illinois	---	---	2,446	---	32	---	---	---	2,478	---	2,478	2,642
Ind. and Ky.	---	---	6,217	---	36	---	211	---	6,464	---	6,464	---
Mich. and Wis.	---	---	3,229	---	---	---	---	---	3,229	---	3,229	---
Minnesota	---	---	---	---	33	---	---	---	33	---	33	---
Missouri	---	---	69,812	---	51,501	---	21,786	---	143,099	---	143,099	5,711
Ohio	---	---	---	---	---	---	---	---	---	---	---	605
Pennsylvania	---	---	---	950	379	80	78	98	457	1,128	1,585	36
Texas	---	---	---	---	---	---	---	---	---	---	---	80
West Virginia	---	---	---	30	---	---	---	---	---	30	30	---
	---	---	85,224	980	52,387	80	22,075	98	159,686	1,158	160,844	9,074

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
MISSOURI VALLEY REGION (Continued)												
IOWA:												
From Alabama	----	----	64	----	----	----	114	----	178	----	178	----
Colorado	----	----	65	----	----	----	----	----	65	----	65	----
Illinois	----	----	14,155	----	35	----	363	----	14,553	----	14,553	5,784
Ind. and Ky.	----	----	37,642	----	4,986	----	1,984	----	44,612	----	44,612	1,146
Mich. and Wis.	----	----	12,037	----	466	----	743	----	13,246	----	13,246	4
Minnesota	----	----	----	----	2,346	----	33	----	2,379	----	2,379	----
Missouri	----	----	5,975	----	1,132	----	----	----	7,107	----	7,107	----
Ohio	----	----	----	----	18,987	----	39	----	19,026	----	19,026	1,077
Pennsylvania	----	----	----	331	40	----	38	----	78	331	409	----
	----	----	69,938	331	27,992	----	3,314	----	101,244	331	101,575	8,011
NEBRASKA:												
From Alabama	----	----	----	----	35	----	98	----	133	----	133	----
Colorado	----	----	63	----	221	1,646	110	----	394	1.646	2,040	----
Illinois	----	----	1,018	----	----	----	----	----	1,018	----	1,018	----
Ind. and Ky.	----	----	1,625	----	----	----	----	----	1,625	----	1,625	----
Mich. and Wis.	----	----	1,374	----	----	----	182	----	1,556	----	1,556	----
Minnesota	----	----	----	----	1,754	----	63	----	1,817	----	1,817	----
Missouri	----	----	962	----	6,994	----	----	----	7,956	----	7,956	----
Pennsylvania	----	----	----	----	----	----	----	----	----	----	----	74
West Virginia	----	----	----	----	----	30	----	----	----	30	30	----
	----	----	5,042	----	9,004	1,676	453	----	14,499	1,676	16,175	74
KANSAS:												
From Alabama	----	----	1,132	----	----	----	----	----	1,132	----	1,132	----
Colorado	----	----	67	----	700	----	211	----	978	----	978	----
Illinois	----	----	1,412	----	----	----	----	----	1,412	----	1,412	338
Ind. and Ky.	----	----	444	----	----	----	----	----	444	----	444	3,580
Mich. and Wis.	----	----	2,020	----	----	----	----	----	2,020	----	2,020	----
Missouri	----	----	10,614	----	170	----	----	----	10,784	----	10,784	120
Ohio	----	----	----	----	----	----	----	----	----	----	----	409
Pennsylvania	----	----	----	22	----	25	----	----	----	47	47	----
	----	----	15,689	22	870	25	211	----	16,770	47	16,817	4,447

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
LAKE DOCK REGION												
WISCONSIN:												
From Alabama	----------	----------	----------	----------	----------	----------	377	----------	377	----------	377	----------
Illinois	----------	----------	38,386	----------	1,301	----------	20,156	----------	59,843	----------	59,843	23,826
Ind. and Ky.	----------	----------	48,864	----------	12,518	----------	2,670	----------	64,052	----------	64,052	48,584
Mich. and Wis.	----------	----------	89,374	----------	143,591	----------	222,887	----------	455,852	----------	455,852	54,224
Minnesota	----------	----------	----------	----------	1,382	----------	4,855	----------	6,237	----------	6,237	----------
Missouri	----------	----------	789	----------	----------	----------	----------	----------	789	----------	789	----------
Pennsylvania	----------	----------	----------	1,637	----------	2,206	----------	----------	----------	3,843	3,843	39
Tennessee	----------	----------	208	----------	----------	----------	----------	----------	208	----------	208	----------
Virginia	----------	----------	----------	127	----------	----------	----------	----------	----------	127	127	----------
West Virginia	----------	----------	----------	138	----------	231	127	----------	127	369	496	----------
	----------	----------	177,621	1,902	158,792	2,437	251,072	----------	587,485	4,339	591,824	126,673
MINNESOTA:												
From Colorado	----------	----------	----------	----------	4,653	----------	----------	----------	4,653	----------	4,653	----------
Illinois	----------	----------	15,197	----------	----------	----------	----------	----------	15,197	----------	15,197	----------
Ind. and Ky.	----------	----------	8,799	----------	----------	----------	188	----------	8,987	----------	8,987	----------
Mich. and Wis.	454	----------	9,379	----------	37	----------	674	----------	10,544	----------	10,544	----------
Minnesota	533,441	----------	10,415	----------	66,637	----------	177,946	----------	788,439	----------	788,439	104,558
Missouri	----------	----------	285	----------	----------	----------	----------	----------	285	----------	285	----------
Ohio	6,590	----------	----------	----------	----------	----------	----------	----------	6,590	----------	6,590	----------
Pennsylvania	----------	----------	----------	100	----------	----------	----------	----------	----------	100	100	----------
Virginia	----------	----------	----------	100	----------	----------	----------	----------	----------	100	100	----------
	540,485	----------	44,075	200	71,327	----------	178,808	----------	834,695	200	834,895	104,558
NORTH DAKOTA:												
From Minnesota	----------	----------	----------	----------	415	----------	606	----------	1,021	----------	1,021	----------
Missouri	----------	----------	153	----------	----------	----------	----------	----------	153	----------	153	----------
	----------	----------	153	----------	415	----------	606	----------	1,174	----------	1,174	----------
SOUTH DAKOTA:												
From Indiana	----------	----------	36	----------	----------	----------	----------	----------	36	----------	36	----------
Mich. and Wis.	----------	----------	207	----------	----------	----------	36	----------	243	----------	243	----------
Minnesota	----------	----------	----------	----------	216	----------	1,023	----------	1,239	----------	1,239	----------
	----------	----------	243	----------	216	----------	1,059	----------	1,518	----------	1,518	----------

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
SOUTHEAST REGION												
WEST VIRGINIA:												
From Alabama	-	-	-	-	16,892	-	-	-	16,892	-	16,892	-
Ind. and Ky.	-	-	-	-	33,990	-	-	-	33,990	-	33,990	-
Mich. and Wis.	-	-	-	-	6,796	-	-	-	6,796	-	6,796	-
Ohio	100,217	-	5,301	-	18,720	-	52	-	124,290	-	124,290	1,062
Pennsylvania	-	160,243	-	25,058	965	104,142	-	-	965	289,443	290,408	14,563
Tennessee	-	-	-	-	2,000	-	-	-	2,000	-	2,000	-
Virginia	-	-	-	212	-	5,033	-	-	-	5,245	5,245	-
West Virginia	1,503,787	1,035	1,583	14,915	748,211	99,919	899	-	2,254,480	115,869	2,370,349	188,397
	1,604,004	161,278	6,884	40,185	827,574	209,094	951	-	2,439,413	410,557	2,849,970	204,022
VIRGINIA:												
From Alabama	-	-	13,167	-	2,995	-	-	-	16,162	-	16,162	-
Ind. and Ky	-	-	1,531	-	11,802	-	38	-	13,371	-	13,371	-
Ohio	-	-	8,827	-	332,832	-	-	-	341,659	-	341,659	210
Pennsylvania	1,586	6,482	1,073	2,879	3,898	42	-	-	6,557	9,403	15,960	-
Tennessee	477	-	-	-	554	-	-	-	1,031	-	1,031	-
Virginia	-	63,647	-	12,050	-	99,703	-	313	-	175,713	175,713	935
West Virginia	-	-	227	8,582	95	-	-	-	322	8,582	8,904	-
	2,063	70,129	24,825	23,511	352,176	99,745	38	313	379,102	193,698	572,800	1,145
NORTH CAROLINA:												
From Alabama	-	-	9,516	-	4,852	-	3,841	-	18,209	-	18,209	-
Ohio	-	-	-	-	-	-	-	-	-	-	-	236
Pennsylvania	-	-	-	393	-	-	-	-	-	393	393	-
Tennessee	-	-	3,445	-	-	-	-	-	3,445	-	3,445	186
Virginia	-	-	-	2,516	-	1,245	-	420	-	4,181	4,181	177
West Virginia	-	-	-	110	-	-	-	-	-	110	110	-
	-	-	12,961	3,019	4,852	1,245	3,841	420	21,654	4,684	26,338	599
SOUTH CAROLINA:												
From Alabama	-	-	4,816	-	1,989	-	5,770	-	12,575	-	12,575	255
Ohio	-	-	-	-	1,977	-	35	-	2,012	-	2,012	3,510
Virginia	-	-	-	831	-	187	-	488	-	1,506	1,506	200
	-	-	4,816	831	3,966	187	5,805	488	14,587	1,506	16,093	3,965

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
SOUTHEAST REGION (Continued)												
GEORGIA:												
From Alabama	-	-	20,028	-	27,455	-	10,510	-	57,993	-	57,993	-
Illinois	-	-	-	-	111	-	-	-	111	-	111	-
Minnesota	-	-	-	-	29	-	-	-	29	-	29	-
Tennessee	-	-	1,354	-	414	-	-	-	1,768	-	1,768	2,145
Pennsylvania	-	-	-	39	-	-	-	-	-	39	39	-
Virginia	-	-	-	572	-	1,711	-	120	-	2,403	2,403	798
	-	-	21,382	611	28,009	1,711	10,510	120	59,901	2,442	62,343	2,943
FLORIDA:												
From Alabama	-	-	2,066	-	46,147	-	2,506	-	50,719	-	50,719	3,524
Virginia	-	-	-	32	-	-	-	-	-	32	32	-
	-	-	2,066	32	46,147	-	2,506	-	50,719	32	50,751	3,524
KENTUCKY:												
From Alabama	-	-	5,964	-	2,093	-	232	-	8,289	-	8,289	-
Illinois	-	-	-	-	1,260	-	-	-	1,260	-	1,260	135
Ind. and Ky.	614,348	73,950	246	1,721	5,674	19,614	10,415	-	630,683	95,285	725,968	48,072
Minnesota	-	-	-	-	5,018	-	-	-	5,018	-	5,018	-
Missouri	-	-	32	-	-	-	-	-	32	-	32	-
Ohio	-	-	17,747	-	35,890	-	29,209	-	82,846	-	82,846	733
Pennsylvania	-	5,429	-	1,969	-	1,958	-	-	-	9,356	9,356	426
Tennessee	-	-	334	-	-	-	-	-	334	-	334	-
Virginia	-	240	-	573	-	3,909	-	36	-	4,758	4,758	-
West Virginia	-	-	-	1,064	-	15,879	-	-	-	16,943	16,943	-
	614,348	79,619	24,323	5,327	49,935	41,360	39,856	36	728,462	126,342	854,804	49,366
TENNESSEE:												
From Alabama	-	-	71,241	-	13,735	-	4,806	-	89,782	-	89,782	95,698
Illinois	-	-	-	-	431	-	-	-	431	-	431	3,292
Ind. and Ky.	-	-	3,705	-	-	-	-	-	3,705	-	3,705	33,040
Missouri	-	-	-	-	985	-	-	-	985	-	985	-
Pennsylvania	-	-	-	432	784	-	1,012	-	1,796	432	2,228	-
Tennessee	102,769	-	30,203	-	91,400	-	-	-	224,372	-	224,372	7,727
Virginia	-	4,516	-	4,830	-	846	-	518	-	10,710	10,710	207
West Virginia	-	-	-	974	-	-	611	-	611	974	1,585	3,742
	102,769	4,516	105,149	6,236	107,335	846	6,429	518	321,682	12,116	333,798	143,706

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
SOUTHEAST REGION (Continued)												
ALABAMA:												
From Alabama	4,878,979	-	203,270	-	154,308	-	78,488	-	5,315,045	-	5,315,045	201,648
Ind. and Ky.	-	-	-	-	-	-	-	-	-	-	-	9,766
Ohio	-	-	-	-	20,487	-	-	-	20,487	-	20,487	9,046
Pennsylvania	-	-	-	-	9,657	-	-	-	9,657	-	9,657	-
Tennessee	-	-	1,524	-	84	-	-	-	1,608	-	1,608	-
Texas	-	-	6,708	-	5,500	-	-	-	12,208	-	12,208	-
Virginia	-	-	-	219	-	-	-	-	-	219	219	-
West Virginia	-	-	-	-	-	7,556	6,027	-	6,027	7,556	13,583	-
	4,878,979	-	211,502	219	190,036	7,556	84,515	-	5,365,032	7,775	5,372,807	220,460
MISSISSIPPI:												
From Alabama	-	-	1,528	-	347	-	627	-	2,502	-	2,502	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	40
	-	-	1,528	-	347	-	627	-	2,502	-	2,502	40
SOUTHWEST, MOUNTAIN, AND PACIFIC REGION												
LOUISIANA:												
From Alabama	-	-	9,813	-	41,040	-	2,209	-	53,062	-	53,062	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	62
Ohio	-	-	-	-	7,208	-	-	-	7,208	-	7,208	-
Tennessee	-	-	-	-	1,450	-	-	-	1,450	-	1,450	-
Louisiana	-	-	-	115	-	361	-	-	-	476	476	-
	-	-	9,813	115	49,698	361	2,209	-	61,720	476	62,196	62
ARKANSAS:												
From Alabama	-	-	1,009	-	42	-	36	-	1,087	-	1,087	-
Missouri	-	-	-	-	66	-	-	-	66	-	66	-
	-	-	1,009	-	108	-	36	-	1,153	-	1,153	-
OKLAHOMA:												
From Alabama	-	-	720	-	78	-	-	-	798	-	798	-
Colorado	-	-	-	-	-	-	35	-	35	-	35	-
Illinois	-	-	155	-	-	-	-	-	155	-	155	-
Ind. and Ky.	-	-	393	-	-	-	-	-	393	-	393	15,330
Mich. and Wis.	-	-	415	-	-	-	-	-	415	-	415	-
Missouri	-	-	2,777	-	-	-	-	-	2,777	-	2,777	1,704
Texas	-	-	-	-	-	-	-	-	-	-	-	86
	-	-	4,460	-	78	-	35	-	4,573	-	4,573	17,120

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
SOUTHWEST, MOUNTAIN AND PACIFIC REGION (Continued)												
TEXAS:												
From Alabama	-	-	32,985	-	38,526	-	-	-	71,511	-	71,511	-
Colorado	-	-	69	29	147	3,027	79	-	295	3,056	3,351	161
Ind. and Ky.	-	-	-	-	40	-	-	-	40	-	40	-
Mich. and Wis.	-	-	804	-	-	-	-	-	804	-	804	-
Minnesota	-	-	-	-	187	-	-	-	187	-	187	-
Missouri	-	-	736	-	-	-	-	-	736	-	736	2,301
Texas	148,879	-	14,676	-	17,453	-	-	-	181,008	-	181,008	5,417
Utah	-	-	-	-	-	21,329	-	-	-	21,329	21,329	-
	148,879	-	49,270	29	56,353	24,356	79	-	254,581	24,385	278,966	7,879
NEW MEXICO:												
From Colorado	-	-	330	-	2,393	-	-	-	2,723	-	2,723	-
Minnesota	-	-	-	-	1,019	-	-	-	1,019	-	1,019	-
Utah	-	-	-	-	-	30	-	-	-	30	30	-
	-	-	330	-	3,412	30	-	-	3,742	30	3,772	-
ARIZONA:												
From Alabama	-	-	4,776	-	-	-	-	-	4,776	-	4,776	-
Colorado	-	-	38	-	547	-	-	-	585	-	585	-
Minnesota	-	-	-	-	204	-	-	-	204	-	204	-
Missouri	-	-	107	-	-	-	-	-	107	-	107	-
	-	-	4,921	-	751	-	-	-	5,672	-	5,672	-
COLORADO:												
From Colorado	792,469	-	5,405	83	28,988	6,564	828	-	827,690	6,647	834,337	97,131
Illinois	-	-	4,675	-	-	-	-	-	4,675	-	4,675	-
Ind. and Ky.	-	-	107	-	-	-	-	-	107	-	107	-
Mich. and Wis.	-	-	1,630	-	309	-	-	-	1,939	-	1,939	-
Minnesota	-	-	-	-	810	-	-	-	810	-	810	-
Missouri	-	-	4,359	-	102	-	-	-	4,461	-	4,461	-
Utah	-	-	-	-	-	8,022	-	-	-	8,022	8,022	-
	792,469	-	16,176	83	30,209	14,586	828	-	839,682	14,669	854,351	97,131
NEVADA:												
From Utah	-	-	-	-	6,811	-	-	-	6,811	-	6,811	-

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
SOUTHWEST, MOUNTAIN, AND PACIFIC REGION (Continued)												
UTAH:												
From Alabama	-	-	1,912	-	-	-	-	-	1,912	-	1,912	-
Colorado	-	-	1,011	-	933	44	-	-	1,944	44	1,988	-
Illinois	-	-	987	-	-	-	-	-	987	-	987	-
Ind. and Ky.	-	-	70	-	-	-	-	-	70	-	70	-
Mich. and Wis.	-	-	226	-	-	-	-	-	226	-	226	-
Minnesota	-	-	-	-	2,283	-	-	-	2,283	-	2,283	-
Missouri	-	-	7,168	-	-	-	-	-	7,168	-	7,168	-
Utah	861,136	-	-	581	55,818	5,491	4,357	-	921,311	6,072	927,383	106,611
	861,136	-	11,374	581	59,034	5,535	4,357	-	935,901	6,116	942,017	106,611
WYOMING:												
From Colorado	-	-	-	-	1	-	-	-	1	-	1	-
Minnesota	-	-	-	-	1,852	-	-	-	1,852	-	1,852	-
Missouri	-	-	-	-	153	-	-	-	153	-	153	-
	-	-	-	-	2,006	-	-	-	2,006	-	2,006	
MONTANA:												
From Colorado	-	-	-	-	99	9,845	-	-	99	9,845	9,944	-
Ind. and Ky.	-	-	1,466	-	626	-	-	-	2,092	-	2,092	-
Mich. and Wis.	-	-	-	-	1,199	-	-	-	1,199	-	1,199	-
Minnesota	-	-	130	-	2,145	-	-	-	2,275	-	2,275	-
Utah	-	-	-	-	-	5,101	-	-	-	5,101	5,101	28,114
	-	-	1,596	-	4,069	14,946	-	-	5,665	14,946	20,611	28,114
IDAHO:												
From Minnesota	-	-	-	-	1,377	-	-	-	1,377	-	1,377	-
Missouri	-	-	80	-	-	-	-	-	80	-	80	-
Utah	-	-	-	23	49	1,945	340	-	389	1,968	2,357	64
	-	-	80	23	1,426	1,945	340	-	1,846	1,968	3,814	64
OREGON:												
From Alabama	-	-	2,723	-	36	-	-	-	2,759	-	2,759	-
Illinois	-	-	113	-	-	-	-	-	113	-	113	-
Ind. and Ky.	-	-	1,366	-	-	-	-	-	1,366	-	1,366	-
Mich. and Wis.	-	-	32	-	-	-	-	-	32	-	32	-
Minnesota	-	-	643	-	1,108	-	-	-	1,751	-	1,751	-
Missouri	-	-	1,008	-	381	-	-	-	1,389	-	1,389	-
Utah	-	-	-	-	12,534	-	-	-	12,534	-	12,534	-
	-	-	5,885	-	14,059	-	-	-	19,944	-	19,944	-

TABLE 3. - SOURCE AND QUANTITY OF OVEN AND BEEHIVE COKE AND BREEZE CONSUMED IN EACH STATE IN 1947, IN NET TONS (Continued)

Consuming State and source	Coke											Total breeze
	Furnace use		Foundry use		Other industrial use		Domestic use		Total coke			
	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Oven	Beehive	Total	
SOUTHWEST, MOUNTAIN, AND PACIFIC REGION (Continued)												
WASHINGTON:												
From Colorado	---	---	---	---	30	---	---	---	30	---	30	---
Illinois	---	---	495	---	---	---	---	---	495	---	495	---
Ind. and Ky.	---	---	783	---	37	---	---	---	820	---	820	---
Mich. and Wis.	---	---	201	---	---	---	---	---	201	---	201	---
Minnesota	---	---	640	---	1,620	---	---	---	2,260	---	2,260	---
Missouri	---	---	5,494	---	---	---	---	---	5,494	---	5,494	---
Utah	---	---	---	---	4,405	127	---	---	4,405	127	4,532	---
	---	---	7,613	---	6,092	127	---	---	13,705	127	13,832	---
CALIFORNIA:												
From Alabama	---	---	12,315	---	10,319	---	---	---	22,634	---	22,634	---
California	325,570	---	---	---	3,477	---	---	---	329,047	---	329,047	28,327
Colorado	---	---	---	---	3,797	1,073	---	---	3,797	1,073	4,870	---
Illinois	---	---	3,244	---	---	---	---	---	3,244	---	3,244	---
Ind. and Ky.	---	---	8,725	---	---	---	---	---	8,725	---	8,725	---
Mich. and Wis.	---	---	4,318	---	---	---	---	---	4,318	---	4,318	---
Minnesota	---	---	4,225	---	27,608	---	---	---	31,833	---	31,833	---
Missouri	---	---	27,851	---	2,417	---	---	---	30,268	---	30,268	---
Pennsylvania	---	---	---	636	---	---	---	---	---	636	636	---
Texas	---	---	8,385	---	6,875	---	---	---	15,260	---	15,260	---
Utah	---	---	---	---	2,436	24,822	---	---	2,436	24,822	27,258	4,433
West Virginia	---	---	---	379	---	---	---	---	---	379	379	---
	325,570	---	69,063	1,015	56,929	25,895	---	---	451,562	26,910	478,472	32,760

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS
PRODUCED IN ALABAMA

Distination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Alabama	4,878,979	203,270	154,308	78,488	5,315,045	201,648
Arizona	-	4,776	-	-	4,776	-
Arkansas	-	1,009	42	36	1,087	-
California	-	12,315	10,319	-	22,634	-
Florida	-	2,066	46,147	2,506	50,719	3,524
Georgia	-	20,028	27,455	10,510	57,993	-
Illinois	-	5,637	315	14,952	20,904	-
Indiana	-	2,272	651	585	3,508	-
Iowa	-	64	-	114	178	-
Kansas	-	1,132	-	-	1,132	-
Kentucky	-	5,964	2,093	232	8,289	-
Louisiana	-	9,813	41,040	2,209	53,062	-
Maryland	-	758	-	-	758	-
Michigan	-	42,475	-	367	42,842	-
Mississippi	-	1,528	347	627	2,502	-
Missouri	-	3,520	406	-	3,926	-
Nebraska	-	-	35	98	133	-
New Jersey	-	613	-	-	613	-
New York	-	360	-	-	360	-
North Carolina	-	9,516	4,852	3,841	18,209	-
Ohio	3,880	19,185	716	-	23,781	-
Oklahoma	-	720	78	-	798	-
Oregon	-	2,723	36	-	2,759	-
Pennsylvania	-	611	-	-	611	-
South Carolina	-	4,816	1,989	5,770	12,575	255
Tennessee	-	71,241	13,735	4,806	89,782	95,698
Texas	-	32,985	38,526	-	71,511	-
Utah	-	1,912	-	-	1,912	-
Virginia	-	13,167	2,995	-	16,162	-
West Virginia	-	-	16,892	-	16,892	-
Wisconsin	-	-	-	377	377	-
Export	-	8,836	11,178	-	20,014	-
	4,882,859	483,312	374,155	125,518	5,865,844	301,125

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)

PRODUCED IN CALIFORNIA

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
California	325,570	----------	3,477	----------	329,047	28,327
Export	----------	----------	----------	----------	----------	2,082
	325,570	----------	3,477	----------	329,047	30,409

PRODUCED IN COLORADO

Destination	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	Total breeze
Arizona	----------	38	547	----------	585	----------
California	----------	----------	4,870	----------	4,870	----------
Colorado	792,469	5,488	35,552	828	834,337	97,131
Illinois	----------	----------	725	----------	725	----------
Indiana	----------	----------	1,003	----------	1,003	----------
Iowa	----------	65	----------	----------	65	----------
Kansas	----------	67	700	211	978	----------
Minnesota	----------	----------	4,653	----------	4,653	----------
Montana	----------	----------	9,944	----------	9,944	----------
Nebraska	----------	63	1,867	110	2,040	----------
New Mexico	----------	330	2,393	----------	2,723	----------
Ohio	----------	----------	33	----------	33	----------
Oklahoma	----------	----------	----------	35	35	----------
Texas	----------	98	3,174	79	3,351	161
Utah	----------	1,011	977	----------	1,988	----------
Washington	----------	----------	30	----------	30	----------
Wyoming	----------	----------	1	----------	1	----------
	792,469	7,160	66,469	1,263	867,361	97,292

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)

PRODUCED IN CONNECTICUT, MASSACHUSETTS, AND RHODE ISLAND

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Connecticut	----	52,099	223,188	126,810	402,097	36,251
Maine	----	9,583	14,132	32,577	56,292	----
Massachusetts	185,963	75,433	310,763	523,094	1,095,253	121,849
New Hampshire	----	6,968	63	28,060	35,091	----
New York	----	22,855	158	33	23,046	----
Pennsylvania	----	2,110	8,779	----	10,889	----
Rhode Island	----	14,584	51,590	87,954	154,128	20,938
Vermont	----	7,526	195	3,048	10,769	----
Export	----	345	----	9,972	10,317	----
	185,963	191,503	608,868	811,548	1,797,882	179,038

PRODUCED IN ILLINOIS

California	----	3,244	----	----	3,244	----
Colorado	----	4,675	----	----	4,675	----
Georgia	----	----	111	----	111	----
Illinois	3,135,661	147,774	127,322	110,846	3,521,603	263,812
Indiana	77	27,149	6,230	844	34,300	27,718
Iowa	----	14,155	35	363	14,553	5,784
Kansas	----	1,412	----	----	1,412	338
Kentucky	----	----	1,260	----	1,260	135
Michigan	----	73,990	6,004	1,181	81,175	790
Minnesota	----	15,197	----	----	15,197	----
Missouri	----	2,446	32	----	2,478	2,642
Nebraska	----	1,018	----	----	1,018	----
New York	----	995	----	----	995	----
Ohio	22,191	12,872	531	----	35,594	----
Oklahoma	----	155	----	----	155	----
Oregon	----	113	----	----	113	----
Pennsylvania	----	9,568	----	----	9,568	----
Tennessee	----	----	431	----	431	3,292
Utah	----	987	----	----	987	----
Washington	----	495	----	----	495	----
Wisconsin	----	38,386	1,301	20,156	59,843	23,826
Export	----	399	----	----	399	----
	3,157,929	355,030	143,257	133,390	3,789,606	328,337

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)
PRODUCED IN INDIANA AND KENTUCKY

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Alabama	----------	----------	----------	----------	----------	9,766
California	----------	8,725	----------	----------	8,725	----------
Colorado	----------	107	----------	----------	107	----------
Illinois	1,865,583	99,385	28,593	48,271	2,041,832	65,151
Indiana	5,978,145	116,570	261,339	157,725	6,513,779	474,522
Iowa	----------	37,642	4,986	1,984	44,612	1,146
Kansas	----------	444	----------	----------	444	3,580
Kentucky	688,298	1,967	25,288	10,415	725,968	48,072
Michigan	----------	82,971	1,833	6,162	90,966	5,821
Minnesota	----------	8,799	----------	188	8,987	----------
Missouri	----------	6,217	36	211	6,464	----------
Montana	----------	1,466	626	----------	2,092	----------
Nebraska	----------	1,625	----------	----------	1,625	----------
Ohio	----------	30,939	183	3,004	34,126	3,188
Oklahoma	----------	393	----------	----------	393	15,330
Oregon	----------	1,366	----------	----------	1,366	----------
Pennsylvania	----------	1,406	----------	----------	1,406	----------
South Dakota	----------	36	----------	----------	36	----------
Tennessee	----------	3,705	----------	----------	3,705	33,040
Texas	----------	----------	40	----------	40	----------
Utah	----------	70	----------	----------	70	----------
Virginia	----------	1,531	11,802	38	13,371	----------
Washington	----------	783	37	----------	820	----------
West Virginia	----------	----------	33,990	----------	33,990	----------
Wisconsin	----------	48,864	12,518	2,670	64,052	48,584
Export	----------	6,646	38	----------	6,684	----------
	8,532,026	461,657	381,309	230,668	9,605,660	708,200

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)

PRODUCED IN MARYLAND

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Maryland	1,973,545	78	232	----------	1,973,855	162,678
New Jersey	----------	----------	----------	----------	----------	8,164
Pennsylvania	----------	----------	----------	----------	----------	75
	1,973,545	78	232	----------	1,973,855	170,917

PRODUCED IN MICHIGAN AND WISCONSIN

Destination	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	Total breeze
California	----------	4,318	----------	----------	4,318	----------
Colorado	----------	1,630	309	----------	1,939	----------
Illinois	111,313	20,329	870	12,518	145,030	1,282
Indiana	81,015	19,745	11,477	----------	112,237	----------
Iowa	----------	12,037	466	743	13,246	4
Kansas	----------	2,020	----------	----------	2,020	----------
Michigan	1,255,451	343,724	241,787	309,218	2,150,180	208,996
Minnesota	454	9,379	37	674	10,544	----------
Missouri	----------	3,229	----------	----------	3,229	----------
Montana	----------	----------	1,199	----------	1,199	----------
Nebraska	----------	1,374	----------	182	1,556	----------
New Jersey	----------	121	----------	----------	121	164
New York	68,793	52,165	18,844	----------	139,802	3,399
Ohio	98,462	118,533	7,998	----------	224,993	254
Oklahoma	----------	415	----------	----------	415	----------
Oregon	----------	32	----------	----------	32	----------
Pennsylvania	----------	1,520	----------	----------	1,520	1,057
South Dakota	----------	207	----------	36	243	----------
Texas	----------	804	----------	----------	804	----------
Utah	----------	226	----------	----------	226	----------
Washington	----------	201	----------	----------	201	----------
West Virginia	----------	----------	6,796	----------	6,796	----------
Wisconsin	----------	89,374	143,591	222,887	455,852	54,224
Export	4,629	102,178	41,089	24,900	172,796	11,199
	1,620,117	783,561	474,463	571,158	3,449,299	280,579

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)
PRODUCED IN MINNESOTA

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Arizona	----------	----------	204	----------	204	----------
California	----------	4,225	27,608	----------	31,833	----------
Colorado	----------	----------	810	----------	810	----------
Georgia	----------	----------	29	----------	29	----------
Idaho	----------	----------	1,377	----------	1,377	----------
Illinois	52,835	----------	1,569	1,096	55,500	----------
Iowa	----------	----------	2,346	33	2,379	----------
Kentucky	----------	----------	5,018	----------	5,018	----------
Michigan	----------	643	637	117	1,397	----------
Minnesota	533,441	10,415	66,637	177,946	788,439	104,558
Missouri	----------	----------	33	----------	33	----------
Montana	----------	130	2,145	----------	2,275	----------
Nebraska	----------	----------	1,754	63	1,817	----------
New Mexico	----------	----------	1,019	----------	1,019	----------
North Dakota	----------	----------	415	606	1,021	----------
Ohio	----------	30	1,001	----------	1,031	----------
Oregon	----------	643	1,108	----------	1,751	----------
South Dakota	----------	----------	216	1,023	1,239	----------
Texas	----------	----------	187	----------	187	----------
Utah	----------	----------	2,283	----------	2,283	----------
Washington	----------	640	1,620	----------	2,260	----------
Wisconsin	----------	----------	1,382	4,855	6,237	----------
Wyoming	----------	----------	1,852	----------	1,852	----------
Export	----------	----------	1,411	15,468	16,879	----------
	586,276	16,726	122,661	201,207	926,870	104,558

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)
PRODUCED IN MISSOURI

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Arizona	---	107	---	---	107	---
Arkansas	---	---	66	---	66	---
California	---	27,851	2,417	---	30,268	---
Colorado	---	4,359	102	---	4,461	---
Idaho	---	80	---	---	80	---
Illinois	11,918	36,497	3,800	369	52,584	5,922
Indiana	---	67	---	---	67	---
Iowa	---	5,975	1,132	---	7,107	---
Kansas	---	10,614	170	---	10,784	120
Kentucky	---	32	---	---	32	---
Louisiana	---	---	---	---	---	62
Michigan	---	76	---	---	76	---
Minnesota	---	285	---	---	285	---
Mississippi	---	---	---	---	---	40
Missouri	---	69,812	51,501	21,786	143,099	5,711
Nebraska	---	962	6,994	---	7,956	---
New Jersey	---	---	69	---	69	---
New York	---	75	---	---	75	---
North Dakota	---	153	---	---	153	---
Ohio	---	66	---	---	66	---
Oklahoma	---	2,777	---	---	2,777	1,704
Oregon	---	1,008	381	---	1,389	---
Pennsylvania	---	194	---	---	194	---
Tennessee	---	---	985	---	985	---
Texas	---	736	---	---	736	2,301
Utah	---	7,168	---	---	7,168	---
Washington	---	5,494	---	---	5,494	---
Wisconsin	---	789	---	---	789	---
Wyoming	---	---	153	---	153	---
Export	---	226	---	---	226	---
	11,918	175,403	67,770	22,155	277,246	15,860

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)

PRODUCED IN NEW JERSEY AND NEW YORK

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Connecticut	-----	-----	130	39	169	-----
Massachusetts	-----	-----	11,748	3,276	15,024	-----
Michigan	-----	-----	58,151	24,194	82,345	-----
New Hampshire	-----	-----	90	3,613	3,703	-----
New Jersey	-----	48,700	551,809	387,811	988,320	122,174
New York	3,280,142	9,074	1,727,165	671,553	5,687,934	432,258
Ohio	2,872	-----	38,213	-----	41,085	-----
Pennsylvania	22,840	597	42	391	23,870	-----
Vermont	-----	-----	4,034	9,287	13,321	-----
Export	-----	-----	30,345	170,872	201,217	9,754
	3,305,854	58,371	2,421,727	1,271,036	7,056,988	564,186

PRODUCED IN OHIO

Destination	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	Total breeze
Alabama	-----	-----	20,487	-----	20,487	9,046
Illinois	1,823	-----	5,291	-----	7,114	-----
Indiana		12,734	7,175	21,922	41,831	1,821
Iowa	-----	-----	18,987	39	19,026	1,077
Kansas	-----	-----	-----	-----	-----	409
Kentucky	-----	17,747	35,890	29,209	82,846	733
Louisiana	-----	-----	7,208	-----	7,208	-----
Michigan	-----	43,397	29	5,366	48,792	-----
Minnesota	6,590	-----	-----	-----	6,590	-----
Missouri	-----	-----	-----	-----	-----	605
New York	-----	28,750	1,512	-----	30,262	14,113
North Carolina	-----	-----	-----	-----	-----	236
Ohio	8,523,676	143,505	488,862	173,509	9,329,552	796,307
Pennsylvania	6,899	15,691	879	524	23,993	-----
South Carolina	-----	-----	1,977	35	2,012	3,510
Virginia	-----	8,827	332,832	-----	341,659	210
West Virginia	100,217	5,301	18,720	52	124,290	1,062
Export	-----	10,263	-----	-----	10,263	9,386
	8,639,205	286,215	939,849	230,656	10,095,925	838,515

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)
PRODUCED IN PENNSYLVANIA

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Alabama	-	-	9,657	-	9,657	-
California	-	636	-	-	636	-
Connecticut	-	1,532	-	317	1,849	200
Delaware	-	4,267	3,564	395	8,226	1,317
District of Columbia	-	64	22,387	-	22,451	-
Georgia	-	39	-	-	39	-
Illinois	9,922	6,351	5,596	6,302	28,171	-
Indiana	64	2,295	1,860	1,154	5,373	-
Iowa	-	331	40	38	409	-
Kansas	-	22	25	-	47	-
Kentucky	5,429	1,969	1,958	-	9,356	426
Maine	-	-	-	524	524	-
Maryland	326,265	34,170	108,331	730	469,496	10,630
Massachusetts	-	-	202	9,492	9,694	98
Michigan	930	14,370	31,282	13,767	60,349	285
Minnesota	-	100	-	-	100	-
Missouri	-	950	459	176	1,585	36
Nebraska	-	-	-	-	-	74
New Hampshire	-	-	-	2,934	2,934	-
New Jersey	-	62,739	41,780	18,656	123,175	44
New York	100,095	57,771	17,934	20,916	196,716	16,969
North Carolina	-	393	-	-	393	-
Ohio	1,949,199	26,611	22,397	19,472	2,017,679	4,859
Pennsylvania	17,860,784	290,376	634,086	202,527	18,987,773	1,332,119
Tennessee	-	432	784	1,012	2,228	-
Vermont	-	-	38	1,364	1,402	-
Virginia	8,068	3,952	3,940	-	15,960	-
West Virginia	160,243	25,058	105,107	-	290,408	14,563
Wisconsin	-	1,637	2,206	-	3,843	39
Export	4,453	17,735	71,205	6,557	99,950	-
	20,425,452	553,800	1,084,838	306,333	22,370,423	1,381,659

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)
PRODUCED IN TENNESSEE AND TEXAS

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Alabama	----------	8,232	5,584	----------	13,816	----------
California	----------	8,385	6,875	----------	15,260	----------
Georgia	----------	1,354	414	----------	1,768	2,145
Illinois	4,732	----------	----------	----------	4,732	----------
Indiana	----------	191	----------	----------	191	----------
Kentucky	----------	334	----------	----------	334	----------
Louisiana	----------	----------	1,450	----------	1,450	----------
Missouri	----------	----------	----------	----------	----------	80
North Carolina	----------	3,445	----------	----------	3,445	186
Ohio	2,390	----------	----------	----------	2,390	----------
Oklahoma	----------	----------	----------	----------	----------	86
Tennessee	102,769	30,203	91,400	----------	224,372	7,727
Texas	148,879	14,676	17,453	----------	181,008	5,417
Virginia	477	----------	554	----------	1,031	----------
West Virginia	----------	----------	2,000	----------	2,000	----------
Wisconsin	----------	208	----------	----------	208	----------
Export	----------	12,158	9,969	----------	22,127	----------
	259,247	79,186	135,699	----------	474,132	15,641

PRODUCED IN UTAH

Destination	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	Total breeze
California	----------	----------	27,258	----------	27,258	4,433
Colorado	----------	----------	8,022	----------	8,022	----------
Idaho	----------	23	1,994	340	2,357	64
Montana	----------	----------	5,101	----------	5,101	28,114
Nevada	----------	----------	6,811	----------	6,811	----------
New Mexico	----------	----------	30	----------	30	----------
Oregon	----------	----------	12,534	----------	12,534	----------
Texas	----------	----------	21,329	----------	21,329	----------
Utah	861,136	581	61,309	4,357	927,383	106,611
Washington	----------	----------	4,532	----------	4,532	----------
Export	----------	----------	211	----------	211	----------
	861,136	604	149,131	4,697	1,015,568	139,222

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)
PRODUCED IN VIRGINIA

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Alabama	---	219	---	---	219	---
Florida	---	32	---	---	32	---
Georgia	---	572	1,711	120	2,403	798
Illinois	---	126	67	---	193	---
Indiana	488	139	---	---	627	---
Kentucky	240	573	3,909	36	4,758	---
Louisiana	---	115	361	---	476	---
Maryland	---	412	---	---	412	---
Michigan	---	1,001	---	---	1,001	---
Minnesota	---	100	---	---	100	---
New York	---	23	---	---	23	---
North Carolina	---	2,516	1,245	420	4,181	177
Ohio	---	2,097	---	---	2,097	---
Pennsylvania	---	1,101	---	---	1,101	---
South Carolina	---	831	187	488	1,506	200
Tennessee	4,516	4,830	846	518	10,710	207
Virginia	63,647	12,050	99,703	313	175,713	935
West Virginia	---	212	5,033	---	5,245	---
Wisconsin	---	127	---	---	127	---
Export	---	947	---	---	947	---
	68,891	28,023	113,062	1,895	211,871	2,317

TABLE 4. - DISTRIBUTION OF COKE SHIPPED OR USED BY PRODUCER IN 1947, IN NET TONS (Continued)
PRODUCED IN WEST VIRGINIA

Destination	Coke					Total breeze
	Furnace use	Foundry use	Other industrial use	Domestic use	Total coke	
Alabama	---	---	7,556	6,027	13,583	---
California	---	379	---	---	379	---
Illinois	1,823	400	157	3,274	5,654	---
Indiana	427	67	---	297	791	---
Kentucky	---	1,064	15,879	---	16,943	---
Maine	---	---	---	38	38	---
Maryland	28,985	3,880	10,997	---	43,862	---
Massachusetts	---	---	---	1,427	1,427	---
Michigan	16,086	23,496	2,142	29,554	71,278	---
Missouri	---	30	---	---	30	---
Nebraska	---	---	30	---	30	---
New Jersey	---	6,823	4,062	254	11,139	---
New York	22,146	922	815	785	24,668	70
North Carolina	---	110	---	---	110	---
Ohio	290,220	4,787	2,289	2,803	300,099	896
Pennsylvania	143,539	93,361	49,441	16,161	302,502	14,260
Tennessee	---	974	---	611	1,585	3,742
Virginia	---	8,809	95	---	8,904	---
West Virginia	1,504,822	16,498	848,130	899	2,370,349	188,397
Wisconsin	---	138	231	127	496	---
Export	---	7,634	---	3,547	11,181	---
	2,008,048	169,372	941,824	65,804	3,185,048	207,365

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MINERAL MARKET REPORT
NO. M. M. S. 1653

PENNSYLVANIA ANTHRACITE 1947 1/

According to the Bureau of Mines, United States Department of the Interior, the production of Pennsylvania anthracite in 1947 totaled 57,190,009 net tons, a decline of 5 percent from the output in 1946. The principal reason advanced for the decline in production was the insufficient stocking of anthracite by home owners for winter consumption. About 80 percent of the anthracite output is normally used for space heating purposes and when the mines do not work full time during the summer months and when consumers do not purchase a large part of the annual requirement during the summer season, it is difficult for the industry, during the winter months, to step up production sufficiently to meet the increased seasonal demand. Thus, many domestic consumers could not obtain adequate supplies of certain desired sizes during the winter of 1947-48. Production from deep mines accounted for 65 percent of the total output, strip pits 22 percent, culm banks 11 percent, and 2 percent was recovered from streams in the anthracite region by dredging operations. The recovery of coal from culm banks declined 24 percent from 1946 and the tonnage obtained from strip pit operations was slightly under 1946. The industry operated 259 days, compared with 271 days in 1946. The demand for anthracite in foreign countries was extremely strong during 1947 and exports reached a record peak of 8,509,995 tons for the year. Shipments to Canada totaled 4,470,034 tons with virtually all of the remainder being shipped to European countries. In the fall of 1947, when it became apparent that the continuation of heavy exports to Europe would adversely affect the supply situation in this country, an embargo was placed against the shipment of certain sizes to that area in the winter months. During the 1947-48 coal year, 83 percent of the anthracite shipments was destined to the New England and Middle Atlantic States. Of the total shipments, 86 percent moved by rail and 14 percent by truck.

The Anthracite Institute greatly extended its research program on the utilization of anthracite. Funds were approved by the Congress for the establishment of a Bureau of Mines anthracite research laboratory at Schuylkill Haven, Pennsylvania. When the laboratory is completed the Bureau's research activities will be expanded on the various phases of the anthracite industry.

OUTLOOK

Strong demand for Pennsylvania anthracite should continue throughout the winter of 1948-49, and it is expected that the market will readily absorb all available supplies. Shipments to Canada should approach 4,500,000 net tons. Exports to Europe are expected to decline to approximately 1,800,000 tons in the 1948-49 coal year. The cooperation of the Anthracite Institute with architects and manufacturers of primary and auxiliary equipment for the burning of anthracite should be of material assistance to the anthracite industry in retaining old customers and obtaining new ones. It is expected that the extensive advertising campaign conducted under the auspices of the Anthracite Institute will greatly benefit the industry.

1/ This report contains tables showing final statistics of the Pennsylvania anthracite industry for 1947. The complete report to be released as a chapter of Minerals Yearbook 1947, will be distributed to the regular mailing list.

Prepared by Marian I. Cooke and J. A. Corgan, Chief, Anthracite and Coke Section, under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

TABLE 1—Statistical trends of Pennsylvania anthracite industry, 1943-47

	1943	1944	1945	1946	1947
Production:					
Loaded at mines for shipment:					
Breakers net tons	1/50,812,873	53,067,227	45,249,706	50,115,427	1/48,070,241
Washeries " "	1/2,401,065	3,492,187	2,551,426	3,106,521	1/2,012,145
Dredges " "	821,899	1,081,156	741,319	886,639	970,027
Sold to local trade and used by employees " "	4,233,732	3,765,641	4,273,864	4,435,536	4,232,871
Used at collieries for power and heat " "	2,374,051	2,295,152	2,117,594	1,962,750	1,904,725
Total production " "	60,643,620	63,701,363	54,933,909	60,506,873	57,190,009
Value at breaker, washery, or dredge	$306,816,018	$354,582,884	$323,944,435	$413,417,070	$413,019,486
Average sales realization per net ton on breaker shipments:					
Domestic:					
Lump and Broken	$6.77	$7.47	$8.02	$9.23	$10.07
Egg	6.96	7.56	8.13	9.38	10.08
Stove	6.96	7.57	8.10	9.40	10.03
Chestnut	6.97	7.58	8.12	9.42	10.05
Pea	5.48	6.11	6.62	7.79	8.23
Total domestic	6.76	7.38	7.93	9.21	9.82
Steam:					
Buckwheat No. 1	4.00	4.52	4.79	5.53	5.82
Buckwheat No. 2 (Rice)	3.12	3.59	3.91	4.52	4.83
Buckwheat No. 3 (Barley)	2.25	2.53	2.65	3.11	3.56
Buckwheat No. 4	1.55	1.82	1.85	2.09	2.38
Other (including silt)	1.13	1.39	1.58	1.90	2.17
Total steam	3.02	3.42	3.56	4.08	4.32
Total all sizes	5.38	5.91	6.26	7.25	7.65
Percent by sizes in total breaker shipments:					
Domestic:					
Lump and broken	0.4	0.3	0.3	0.3	0.5
Egg	7.1	7.1	6.5	6.3	5.8
Stove	22.4	21.9	21.7	22.0	21.7
Chestnut	24.5	25.2	25.5	25.8	25.1
Pea	8.7	8.3	7.8	7.4	7.3
Total domestic	63.1	62.8	61.8	61.8	60.4
Steam:					
Buckwheat No. 1	14.2	14.2	14.1	13.9	13.5
Buckwheat No. 2 (Rice)	8.3	8.5	8.1	7.8	7.7
Buckwheat No. 3 (Barley)	9.9	9.7	9.9	9.8	10.2
Buckwheat No. 4	3.0	3.1	3.6	4.0	5.3
Other (including silt)	1.5	1.7	2.5	2.7	2.9
Total steam	36.9	37.2	38.2	38.2	39.6
Producers' stocks 2/ net tons	329,000	445,000	130,000	251,168	702,109
Exports 3/ " "	4,139,000	4,186,000	3,691,000	6,497,245	8,509,995
Imports 3/ " "	166,000	12,000	149	9,556	10,350
Consumption (calculated) " "	57,100,000	59,400,000	51,600,000	53,900,000	48,200,000
Average number of days worked	270	292	269	271	259
Average number of men employed	79,153	77,591	72,842	78,145	78,600
Output per man per day net tons	2.78	2.79	2.79	2.84	2.78
Output per man per year " "	751	815	751	770	720
Quantity cut by machines " "	1,624,883	1,336,082	1,210,171	1,232,828	1,209,983
Quantity mined by stripping " "	8,989,387	10,953,030	10,056,325	12,858,930	12,603,545
Quantity loaded by machines underground net tons	14,745,793	14,975,146	13,927,955	15,619,162	16,054,011
Distribution:					
Total receipts in New England 4/ net tons	5,722,000	6,222,000	5,081,000	5,643,076	4,737,946
Exports to Canada 3/ " "	4,097,000	4,144,000	3,393,000	4,513,637	4,470,034
Loaded into vessels at Lake Erie 5/ " "	661,000	1,066,000	1,234,000	1,112,996	936,040
Receipts at Duluth-Superior 6/ " "	302,000	580,000	766,000	639,900	446,605

1/ Small quantity of washery coal included under "Breakers."
2/ Anthracite Committee.
3/ U. S. Department of Commerce.
4/ Commonwealth of Massachusetts, Division on the Necessaries of Life, and Association of American Railroads.
5/ Ore and Coal Exchange, Cleveland, Ohio.
6/ U. S. Engineer Office, Duluth, Minn.

TABLE 2. - Statistical summary of monthly developments in the Pennsylvania anthracite industry in 1947
(All tonnage figures represent net tons)

	1947														1946 (total)
													Year		
	January	February	March	April	May	June	July	August	September	October	November	December	Total	Change from 1946 (percent)	
Production (including mine fuel, local sales, and dredge coal)	5,172,000	4,254,000	4,984,000	4,293,000	4,564,000	4,624,000	4,098,000	5,011,000	5,158,000	5,524,000	4,629,000	4,879,000	57,190,000	-5.5	60,507,000
Shipments (breakers and washeries only, all sizes):															
By rail 1/	3,980,342	3,166,450	4,146,363	3,730,119	4,199,263	4,009,284	3,364,132	4,527,963	4,435,135	4,740,669	3,986,669	3,953,510	48,239,899	-5.6	51,076,047
By truck 2/	680,682	662,980	681,035	614,001	472,430	457,960	566,736	389,878	488,443	605,141	602,535	739,863	6,961,684	-9.1	7,658,090
Carloadings 3/	76,506	60,364	78,062	71,667	77,015	76,752	68,618	86,453	86,185	92,831	74,814	76,562	925,829	-6.3	987,730
Distribution:															
Lake Erie loadings 4/	---	---	---	60,408	82,166	90,322	128,222	126,691	149,395	185,916	103,805	9,115	936,040	-15.9	1,112,996
Lake Ontario loadings 5/	---	---	---	25,157	29,169	19,782	35,226	35,513	29,697	35,003	22,223	---	231,770	-8.0	251,813
Receipts at Duluth-Superior 6/	---	---	---	---	67,270	57,544	50,851	79,040	58,275	94,197	39,428	---	446,605	-30.2	639,900
Upper Lake dock trade: 7/															
Receipts:															
Lake Superior	---	---	---	---	67,266	65,133	51,032	79,041	66,372	94,286	47,193	---	470,323	-31.9	690,759
Lake Michigan	1,125	1,645	2,315	27,481	40,706	10,656	72,945	52,641	54,763	64,700	50,142	1,578	380,697	-6.2	405,765
Deliveries (reloadings):															
Lake Superior	77,532	45,864	26,861	7,124	16,159	31,424	40,147	37,968	41,509	68,739	58,576	64,118	516,021	-28.3	719,226
Lake Michigan	27,122	24,659	35,179	14,908	21,351	27,968	52,246	23,404	29,786	33,769	22,545	29,648	342,585	-18.0	417,720
New England receipts:															
By tide 7/	13,294	13,598	11,512	9,682	41,522	26,020	22,891	18,369	20,269	23,186	30,243	9,193	239,779	-39.8	398,625
By rail 8/	467,307	326,715	313,882	265,680	363,475	374,270	287,353	391,743	419,280	456,746	399,864	431,852	4,498,167	-14.2	5,244,451
Exports 9/	567,708	386,555	527,540	869,571	820,478	714,249	699,904	844,432	855,416	829,725	765,123	629,294	8,509,995	+31.0	6,497,245
Imports 9/	548	---	4,811	2,560	---	3	---	---	501	---	---	1,927	10,350	+8.3	9,556
Industrial consumption and stocks by:															
Railroads (class 1 only): 3/															
Consumption	99,200	89,096	94,364	75,690	67,363	61,590	56,017	53,382	87,600	97,929	68,730	89,652	940,613	-12.8	1,079,028
Stocks	114,937	106,136	102,767	103,471	106,384	123,475	111,618	112,427	109,262	110,657	115,068	114,515	114,515	-2.8	117,860
Electric-power utilities: 10/															
Consumption	304,769	287,816	290,043	266,611	257,473	256,857	267,068	305,986	309,626	346,109	309,862	326,180	3,528,400	+2.2	3,453,326
Stocks	1,746,655	1,696,814	1,715,294	1,844,407	1,932,930	2,052,384	2,085,482	2,159,373	2,234,779	2,262,155	2,252,367	2,208,583	2,208,583	+29.6	1,703,659
Stocks on Upper Lake Docks: 7/															
Lake Superior	136,276	90,412	62,207	50,213	101,320	135,029	145,611	186,666	211,530	235,825	223,992	160,933	160,933	-24.7	213,808
Lake Michigan	89,645	66,635	33,771	50,570	69,925	52,613	65,572	102,480	127,457	158,388	185,985	157,915	157,915	+36.6	115,642
Producers' stocks 11/	283,528	292,454	320,528	404,368	520,480	485,456	291,532	294,681	397,922	529,465	674,933	702,109	702,109	+179.5	251,168
Sales of mechanical stokers: 9/															
Class 1 (capacity under 61 lb. of coal per hour)	185	132	96	112	163	352	256	346	443	528	344	407	3,364	-52.2	7,044
Class 2 (capacity 61 to 100 lb. of coal per hour)	24	21	16	14	12	39	26	41	57	65	31	45	391	-56.9	908
Wholesale prices: 12/															
On tracks, destination:															
Chestnut	$13.75	$13.75	$13.77	$13.65	$13.46	$13.52	$13.71	$14.62	$14.70	$14.73	$14.78	$14.80	$14.10	+8.0	$13.06
Pea	$12.09	$12.10	$12.11	$11.99	$11.79	$11.85	$11.96	$12.77	$12.88	$12.90	$12.96	$12.98	$12.36	+7.6	$11.49
Index number (1926 = 100)	114.7	114.8	114.9	113.9	112.2	112.7	114.1	121.7	122.5	122.8	123.3	123.4	117.6	+7.9	109.0
Labor conditions: 12/															
Average weekly earnings	$62.40	$57.42	$64.84	$49.89	$59.15	$62.39	$58.10	$68.51	$67.37	$71.40	$63.43	$67.42	$62.69	+9.7	$57.15
Average hourly earnings	$1.594	$1.637	$1.632	$1.545	$1.593	$1.596	$1.575	$1.780	$1.765	$1.784	$1.754	$1.756	$1.668	+11.6	$1.494
Average hours worked per week	39.1	35.1	39.8	32.3	37.2	39.2	37.0	38.5	38.2	40.0	36.2	38.4	37.6	-1.8	38.3
Index of employment (1939 average = 100)	94.1	93.5	92.3	90.4	91.4	90.5	88.7	91.7	91.0	91.2	91.2	91.5	91.5	+12.1	81.6
Index of payroll totals (1939 average = 100)	228.1	208.5	232.8	175.5	210.2	219.4	200.3	244.0	237.9	252.7	224.4	239.4	222.8	+23.0	181.1

1/ Furnished by Anthracite Institute.
2/ Pennsylvania Department of Mines.
3/ Association of American Railroads.
4/ Ore and Coal Exchange, Cleveland, Ohio.
5/ Buffalo Branch, Ore and Coal Exchange, Cleveland, Ohio.
6/ U. S. Engineer Office, Duluth, Minn.
7/ Includes all commercial docks on Lake Superior and west shore of Lake Michigan as far south as Kenosha. Based on data courteously supplied by Maher Coal Bureau and direct reports to the Bureau of Mines.
8/ Furnished by Commonwealth of Massachusetts, Division on the Necessaries of Life.
9/ U. S. Department of Commerce.
10/ Federal Power Commission.
11/ Anthracite Committee. Represents coal in storage on nearest available date to the end of the month.
12/ Bureau of Labor Statistics

TABLE 3 . - Pennsylvania anthracite shipped, sold locally, and used as colliery fuel in 1947, by regions

Region	Shipments		Local sales		Colliery fuel		Total	
	Net tons	Value 1/	Net tons	Value	Net tons	Value	Net tons	Value 1/
Lehigh:								
Breakers ----------	8,504,515	$63,207,656	368,778	$3,186,051	290,385	$1,409,452	9,163,678	$67,803,159
Washeries ---------	299,099	1,163,277	16,219	135,788	1,110	5,084	316,428	1,304,149
Dredges -----------	46,478	93,431	--------	---------	--------	---------	46,478	93,431
Total Lehigh ----	8,850,092	64,464,364	384,997	3,321,839	291,495	1,414,536	9,526,584	69,200,739
Schuylkill:								
Breakers ----------	17,535,001	122,270,159	1,141,596	8,830,049	221,464	505,765	18,898,061	131,605,973
Washeries ---------	823,081	2,625,627	3,226	18,430	1,062	3,513	827,369	2,647,570
Dredges -----------	914,649	1,944,936	219,888	391,327	26,963	23,394	1,161,500	2,359,657
Total Schuylkill -	19,272,731	126,840,722	1,364,710	9,239,806	249,489	532,672	20,886,930	136,613,200
Wyoming:								
Breakers ----------	22,003,815	181,933,308	2,464,128	19,010,556	1,363,496	3,459,543	25,831,439	204,403,407
Washeries ---------	887,053	2,484,320	3,070	11,440	245	854	890,368	2,496,614
Dredges -----------	8,900	20,474	2,828	6,506	---------	---------	11,728	26,980
Total Wyoming ---	22,899,768	184,438,102	2,470,026	19,028,502	1,363,741	3,460,397	26,733,535	206,927,001
Total, excluding Sullivan County:								
Breakers ----------	48,043,331	367,411,123	3,974,502	31,026,656	1,875,345	5,374,760	53,893,178	403,812,539
Washeries ---------	2,009,233	6,273,224	22,515	165,658	2,417	9,451	2,034,165	6,448,333
Dredges -----------	970,027	2,058,841	222,716	397,833	26,963	23,394	1,219,706	2,480,068
Total -----------	51,022,591	375,743,188	4,219,733	31,590,147	1,904,725	5,407,605	57,147,049	412,740,940
Sullivan County: 2/								
Breakers 3/ -------	29,822	194,957	13,138	83,589	---------	---------	42,960	278,546
Grand total: 1947	51,052,413	375,938,145	4,232,871	31,673,736	1,904,725	5,407,605	57,190,009	413,019,486
1946	54,108,587	376,908,404	4,435,536	31,487,550	1,962,750	5,021,116	60,506,873	413,417,070
Change, 1947 -percent	-5.6	-0.3	-4.6	+0.6	-3.0	+7.7	-5.5	-0.1

1/ Value given for shipments is value at which coal left possession of producing company and does not include margins of separately incorporated sales companies.

2/ For purposes of historical comparison and statistical convenience, the mines of Sullivan County are grouped with the Pennsylvania anthracite region, although the product is classified as semianthracite according to the American Society for Testing Materials Tentative Standard.

3/ Includes a small quantity of washery coal.

TABLE 4 -- Pennsylvania anthracite produced, 1943-47, by fields, in net tons

(The figures of breaker product include a certain quantity of culm-bank coal, which amounted to 4,481,348 tons in 1947)

Field	1943	1944	1945	1946	1947
Eastern Middle:					
Breakers -------------------	6,140,224	5,905,623	1/ 5,005,245	5,057,619	4,270,240
Washeries -------------------	356,450	403,688	1/ 342,116	282,481	315,014
Dredges -------------------	-----------	-----------	-----------	-----------	-----------
Total Eastern Middle -------	6,496,674	6,309,311	5,347,361	5,340,100	4,585,254
Western Middle:					
Breakers -------------------	12,577,769	12,721,704	11,540,524	13,040,147	12,147,528
Washeries -------------------	280,525	538,875	130,789	530,246	591,652
Dredges -------------------	442,608	385,137	308,976	362,423	411,804
Total Western Middle -------	13,300,902	13,645,716	11,980,289	13,932,816	13,150,984
Southern:					
Breakers -------------------	10,519,946	12,194,069	10,916,769	11,817,427	11,643,971
Washeries -------------------	1,486,803	2,091,473	1,373,578	1,386,125	237,131
Dredges -------------------	879,379	983,046	896,250	761,131	796,174
Total Southern ------------	12,886,128	15,268,588	13,186,597	13,964,683	12,677,276
Northern:					
Breakers -------------------	1/27,417,425	27,794,639	1/23,503,306	26,227,918	25,831,439
Washeries -------------------	1/ 432,021	531,338	1/ 735,041	925,427	890,368
Dredges -------------------	12,750	4,554	-----------	8,840	11,728
Total Northern ------------	27,862,196	28,330,531	24,238,347	27,162,185	26,733,535
Total, excluding Sullivan County:					
Breakers -------------------	1/56,655,364	58,616,035	1/50,965,844	56,143,111	53,893,178
Washeries -------------------	1/ 2,555,799	3,565,374	1/ 2,581,524	3,124,279	2,034,165
Dredges -------------------	1,334,737	1,372,737	1,205,226	1,132,394	1,219,706
Total -------------------	60,545,900	63,554,146	54,752,594	60,399,784	57,147,049
Sullivan County:					
Breakers -------------------	97,720	147,217	149,505	85,402	1/ 42,960
Washeries -------------------	-----------	-----------	31,810	21,687	-----------
Total Sullivan County ------	97,720	147,217	181,315	107,089	42,960
Grand total ---------------	60,643,620	63,701,363	54,933,909	60,506,873	57,190,009

1/ Small quantity of washery coal included with breaker.

TABLE 5. - Pennsylvania anthracite produced in 1947, classified as fresh-mined, culm-bank, and river coal, and as breaker, washery, and dredge product, by fields, in net tons

Field and type of plants	From mines			From culm banks	From river dredging	Total
	Underground		Strip pits			
	Mechanically loaded	Hand loaded				
Eastern Middle:						
Breakers	620,615	2,021,311	1,379,163	249,151	---------	4,270,240
Washeries	---------	19,547	23,162	272,305	---------	315,014
Total Eastern Middle	620,615	2,040,858	1,402,325	521,456	---------	4,585,254
Western Middle:						
Breakers	1,478,799	4,864,786	4,196,777	1,607,166	---------	12,147,528
Washeries	---------	---------	2,597	589,055	---------	591,652
Dredges	---------	---------	---------	---------	411,804	411,804
Total Western Middle	1,478,799	4,864,786	4,199,374	2,196,221	411,804	13,150,984
Southern:						
Breakers	514,772	4,600,154	4,429,746	2,099,299	---------	11,643,971
Washeries	---------	---------	62,590	174,541	---------	237,131
Dredges	---------	---------	---------	---------	796,174	796,174
Total Southern	514,772	4,600,154	4,492,336	2,273,840	796,174	12,677,276
Northern:						
Breakers	13,439,825	9,362,784	2,506,010	522,820	---------	25,831,439
Washeries	---------	3,971	---------	886,397	---------	890,368
Dredges	---------	---------	---------	---------	11,728	11,728
Total Northern	13,439,825	9,366,755	2,506,010	1,409,217	11,728	26,733,535
Total, excluding Sullivan County:						
Breakers	16,054,011	20,849,035	12,511,696	4,478,436	---------	53,893,178
Washeries	---------	23,518	88,349	1,922,298	---------	2,034,165
Dredges	---------	---------	---------	---------	1,219,706	1,219,706
Total	16,054,011	20,872,553	12,600,045	6,400,734	1,219,706	57,147,049
Sullivan County:						
Breakers 1/	---------	36,548	3,500	2,912	---------	42,960
Total Sullivan County	---------	36,548	3,500	2,912	---------	42,960
Grand total	16,054,011	20,909,101	12,603,545	6,403,646	1,219,706	57,190,009

1/ Small quantity of washery coal included with breaker.

TABLE 6. - Pennsylvania anthracite produced in 1947, classified as fresh-mined, culm-bank, and river coal, and as breaker, washery, and dredge product, by regions, in net tons

Region and type of plants	From mines			From culm banks	From river dredging	Total
	Underground		Strip pits			
	Mechanically loaded	Hand loaded				
Lehigh:						
Breakers	620,615	5,087,310	2,684,971	770,782	---------	9,163,678
Washeries	---------	19,547	23,162	273,719	---------	316,428
Dredges	---------	---------	---------	---------	46,478	46,478
Total Lehigh	620,615	5,106,857	2,708,133	1,044,501	46,478	9,526,584
Schuylkill:						
Breakers	1,993,571	6,398,941	7,320,715	3,184,834	---------	18,898,061
Washeries	---------	---------	65,187	762,182	---------	827,369
Dredges	---------	---------	---------	---------	1,161,500	1,161,500
Total Schuylkill	1,993,571	6,398,941	7,385,902	3,947,016	1,161,500	20,886,930
Wyoming:						
Breakers	13,439,825	9,362,784	2,506,010	522,820	---------	25,831,439
Washeries	---------	3,971	---------	886,397	---------	890,368
Dredges	---------	---------	---------	---------	11,728	11,728
Total Wyoming	13,439,825	9,366,755	2,506,010	1,409,217	11,728	26,733,535
Total, excluding **Sullivan County**:						
Breakers	16,054,011	20,849,035	12,511,696	4,478,436	---------	53,893,178
Washeries	---------	23,518	88,349	1,922,298	---------	2,034,165
Dredges	---------	---------	---------	---------	1,219,706	1,219,706
Total	16,054,011	20,872,553	12,600,045	6,400,734	1,219,706	57,147,049
Sullivan County:						
Breakers 1/	---------	36,548	3,500	2,912	---------	42,960
Total Sullivan County	---------	36,548	3,500	2,912	---------	42,960
Grand total	16,054,011	20,909,101	12,603,545	6,403,646	1,219,706	57,190,009

1/ Small quantity of washery coal included with breaker.

TABLE 7. - Pennsylvania anthracite shipped in 1947, by regions and sizes

Size	Breaker shipments 1/						Washery shipments	Dredge shipments	Grand total
	Lehigh region	Schuylkill region	Wyoming region	Sullivan County 2/	Total				
					Excluding Sullivan County	Including Sullivan County 2/			
Net tons									
Lump 3/ and Broken	54,892	129,449	64,017	-------	248,358	248,358	---------	---------	248,358
Egg	426,571	922,622	1,420,440	-------	2,769,633	2,769,633	---------	---------	2,769,633
Stove	1,700,449	2,793,458	5,942,088	2,548	10,435,995	10,438,543	15,727	---------	10,454,270
Chestnut	1,848,008	3,712,304	6,498,296	8,841	12,058,608	12,067,449	104,127	---------	12,171,576
Pea	698,197	1,341,034	1,488,882	4,602	3,528,113	3,532,715	33,340	359	3,566,414
Total domestic	4,728,117	8,898,867	15,413,723	15,991	29,040,707	29,056,698	153,194	359	29,210,251
Buckwheat No. 1	1,145,466	2,471,532	2,878,612	3,044	6,495,610	6,498,654	42,295	16,127	6,557,076
Buckwheat No. 2 (Rice)	743,421	1,501,738	1,443,193	178	3,688,352	3,688,530	40,727	15,468	3,744,725
Buckwheat No. 3 (Barley)	859,733	2,559,918	1,500,225	-------	4,919,876	4,919,876	117,595	200,001	5,237,472
Buckwheat No. 4	476,475	1,583,825	466,252	-------	2,526,552	2,526,552	1,071,028	462,413	4,059,993
Other (including silt)	551,303	519,121	301,810	10,609	1,372,234	1,382,843	584,394	275,659	2,242,896
Total steam	3,776,398	8,636,134	6,590,092	13,831	19,002,624	19,016,455	1,856,039	969,668	21,842,162
Grand total	8,504,515	17,535,001	22,003,815	29,822	48,043,331	48,073,153	2,009,233	970,027	51,052,413
Value									
Lump 3/ and Broken	$560,603	$1,307,961	$632,148	-------	$2,500,712	$2,500,712	---------	---------	$2,500,712
Egg	4,365,894	9,325,687	14,216,060	-------	27,907,641	27,907,641	---------	---------	27,907,641
Stove	17,395,752	27,983,016	59,307,170	$28,951	104,685,938	104,714,889	$166,074	---------	104,880,963
Chestnut	18,931,891	37,371,276	64,830,427	90,195	121,133,594	121,223,789	998,674	---------	122,222,463
Pea	5,896,046	10,959,068	12,188,735	42,709	29,043,849	29,086,558	266,887	$1,764	29,355,209
Total domestic	47,150,186	86,947,008	151,174,540	161,855	285,271,734	285,433,589	1,431,635	1,764	286,866,988
Buckwheat No. 1	6,839,580	14,239,861	16,718,950	12,103	37,798,391	37,810,494	241,446	51,772	38,103,712
Buckwheat No. 2 (Rice)	3,668,254	7,173,796	6,979,143	559	17,821,193	17,821,752	194,353	66,513	18,082,618
Buckwheat No. 3 (Barley)	3,073,318	9,005,909	5,444,226	-------	17,523,453	17,523,453	439,507	466,926	18,429,886
Buckwheat No. 4	1,260,400	3,783,507	968,893	-------	6,012,800	6,012,800	2,614,936	948,592	9,576,328
Other (including silt)	1,215,918	1,120,078	647,556	20,440	2,983,552	3,003,992	1,351,347	523,274	4,878,613
Total steam	16,057,470	35,323,151	30,758,768	33,102	82,139,389	82,172,491	4,841,589	2,057,077	89,071,157
Grand total	63,207,656	122,270,159	181,933,308	194,957	367,411,123	367,606,080	6,273,224	2,058,841	375,938,145
Average value per ton									
Lump 3/ and Broken	$10.21	$10.10	$9.87	-------	$10.07	$10.07	---------	---------	$10.07
Egg	10.23	10.11	10.01	-------	10.08	10.08	---------	---------	10.08
Stove	10.23	10.02	9.98	$11.36	10.03	10.03	$10.56	---------	10.03
Chestnut	10.24	10.07	9.98	10.20	10.05	10.05	9.59	---------	10.04
Pea	8.44	8.17	8.19	9.28	8.23	8.23	8.01	4.91	8.23
Total domestic	9.97	9.77	9.81	10.12	9.82	9.82	9.35	4.91	9.82
Buckwheat No. 1	5.97	5.76	5.81	3.98	5.82	5.82	5.71	3.21	5.81
Buckwheat No. 2 (Rice)	4.93	4.78	4.84	3.14	4.83	4.83	4.77	4.30	4.83
Buckwheat No. 3 (Barley	3.57	3.52	3.63	-------	3.56	3.56	3.74	2.33	3.52
Buckwheat No. 4	2.65	2.39	2.08	-------	2.38	2.38	2.44	2.05	2.36
Other (including silt)	2.21	2.16	2.15	1.93	2.17	2.17	2.31	1.90	2.18
Total steam	4.25	4.09	4.67	2.39	4.32	4.32	2.61	2.12	4.08
Grand total	7.43	6.97	8.27	6.54	7.65	7.65	3.12	2.12	7.36

1/ Figures of shipments from breakers include some culm-bank coal handled in breakers.
2/ Small quantity of washery coal included with breaker.
3/ Quantity of Lump included is insignificant.

TABLE 8. - Estimated weekly production of Pennsylvania anthracite in 1947

Week ended -	Net tons	Week ended -	Net tons
Jan. 4	1/505,000	July 19	1,120,000
11	1,219,000	26	1,121,000
18	1,170,000	Aug. 2	1,130,000
25	1,202,000	9	1,183,000
Feb. 1	1,244,000	16	1,063,000
8	1,111,000	23	1,198,000
15	973,000	30	1,204,000
22	1,053,000	Sept. 6	949,000
Mar. 1	1,103,000	13	1,223,000
8	1,056,000	20	1,260,000
15	1,199,000	27	1,282,000
22	1,169,000	Oct. 4	1,293,000
29	1,194,000	11	1,335,000
Apr. 5	807,000	18	1,227,000
12	978,000	25	1,234,000
19	1,047,000	Nov. 1	940,000
26	1,075,000	8	1,189,000
May 3	1,098,000	15	1,101,000
10	1,060,000	22	1,217,000
17	1,078,000	29	1,061,000
24	1,088,000	Dec. 6	1,185,000
31	838,000	13	1,202,000
June 7	1,112,000	20	1,222,000
14	1,159,000	27	748,000
21	1,225,000	31	1/522,000
28	1,109,000		
July 5	98,000	Calendar year	57,190,000
12	1,011,000		

1/ Figures represent output of working days in that part of week included in the calendar year 1947. Preliminary production for week of January 3, 1948, was 786,000 tons. Revised total for week of January 4, 1947, was 882,000 tons.

TABLE 9.--Estimated monthly production of Pennsylvania anthracite, 1940-47, in thousands of net tons 1/

Month	1940	1941	1942	1943	1944	1945	1946	1947
January	5,783	5,162	4,560	4,466	4,970	4,219	4,968	5,172
February	3,648	4,596	4,801	5,203	5,811	4,471	4,774	4,254
March	3,881	4,765	5,116	5,855	5,512	5,269	5,476	4,984
April	3,853	3,317	5,185	5,337	5,141	5,124	5,069	4,293
May	4,070	4,001	4,873	5,219	5,781	2,083	5,453	4,564
June	4,492	5,072	5,153	3,244	5,558	5,667	3,625	4,624
July	4,534	4,855	5,374	5,698	4,905	4,944	5,248	4,098
August	3,883	5,441	5,212	5,653	5,558	4,656	5,428	5,011
September	4,172	5,334	5,459	5,474	5,380	4,640	5,033	5,158
October	4,355	5,580	5,132	5,359	5,538	5,304	5,393	5,524
November	3,980	3,974	4,824	4,140	5,029	4,559	4,975	4,629
December	4,834	4,271	4,639	4,996	4,518	3,998	5,065	4,879
	51,485	56,368	60,328	60,644	63,701	54,934	60,507	57,190

1/ Production is estimated from weekly carloadings as reported by the Association of American Railroads and includes mine fuel, coal sold locally, and dredge coal. Includes in 1941-47 some "bootleg" coal purchased by legitimate operators and prepared at their breakers.

TABLE 10. - Pennsylvania anthracite produced in 1947, by counties

County	Total shipments		Sold to local trade		Used for power and heat		Total production	
	Net tons	Value 1/	Net tons	Value	Net tons	Value	Net tons	Value
Berks, Lancaster, Lebanon, Northampton, and Snyder 2/ ----------	295,137	599,703	18,244	31,493	2	5	313,383	631,201
Carbon ------------	3,120,167	22,417,290	54,092	466,039	67,269	453,355	3,241,528	23,336,684
Columbia ----------	1,340,803	10,759,261	72,873	471,071	44,168	97,334	1,457,844	11,327,666
Dauphin -----------	136,961	396,842	167,565	306,296	25,776	22,206	330,302	725,344
Lackawanna --------	6,881,608	53,000,926	1,093,327	8,986,800	347,689	1,114,063	8,322,624	63,101,789
Luzerne -----------	18,837,669	153,772,543	1,611,501	12,090,406	1,162,431	2,895,788	21,611,601	168,758,737
Northumberland ----	5,897,819	36,682,712	516,000	4,087,600	37,629	73,434	6,451,448	40,843,746
Schuylkill --------	14,374,011	97,743,910	684,432	5,133,213	218,866	748,278	15,277,309	103,625,401
Sullivan ----------	29,822	194,957	13,138	83,589	------	------	42,960	278,546
Susquehanna and Wayne -----------	138,416	370,001	1,699	17,229	895	3,142	141,010	390,372
Total --------	51,052,413	375,938,145	4,232,871	31,673,736	1,904,725	5,407,605	57,190,009	413,019,486

1/ Value given for shipments is value at which coal left possession of producing company and does not include margins of separately incorporated sales companies.

2/ Counties producing dredge coal only.

TABLE 11. - Standard anthracite specifications approved and adopted by the Anthracite Committee effective July 28, 1947

	Round Test mesh, inches	Percent					
		Oversize maximum	Undersize		Maximum impurities 1/		
			Maximum	Minimum	Slate	Bone or Ash 2/	
Broken - - - - - - - - - - -	Through 4-3/8 - -	- - - -	- - - -	- - - -	1½	2	11
	Over 3¼ to 3 - -	- - - -	15	7½	- -	- - -	- - -
Egg - - - - - - - - - - - - -	Through 3¼ to 3 -	5	- - - -	- - - -	1½	2	11
	Over 2 7/16 - - -	- - - -	15	7½	- -	- - -	- - -
Stove - - - - - - - - - - - -	Through 2 7/16- -	7½	- - - -	- - - -	2	3	11
	Over 1 5/8- - - -	- - - -	15	7½	- -	- - -	- - -
Chestnut - - - - - - - - - -	Through 1 5/8 - -	7½	- - - -	- - - -	3	4	11
	Over 13/16- - - -	- - - -	15	7½	- -	- - -	- - -
Pea- - - - - - - - - - - - -	Through 13/16 - -	10	- - - -	- - - -	4	5	12
	Over 9/16 - - - -	- - - -	15	7½	- -	- - -	- - -
Buckwheat No. 1 - - - - -	Through 9/16- - -	10	- - - -	- - - -	- -	- - -	13
	Over 5/16 - - - -	- - - -	15	7½	- -	- - -	- - -
Buckwheat No. 2 (Rice) - -	Through 5/16- - -	10	- - - -	- - - -	- -	- - -	13
	Over 3/16 - - - -	- - - -	17	7½	- -	- - -	- - -
Buckwheat No. 3 (Barley) -	Through 3/16- - -	10	- - - -	- - - -	- -	- - -	15
	Over 3/32 - - - -	- - - -	20	10	- -	- - -	- - -
Buckwheat No. 4 - - - - -	Through 3/32- - -	20	- - - -	- - - -	- -	- - -	15
	Over 3/64 - - - -	- - - -	30	10	- -	- - -	- - -
Buckwheat No. 5 - - - - -	Through 3/64- - -	30	No Limit		- -	- - -	16

1/ When slate content in the sizes from Broken to Chestnut inclusive is less than above standards, bone content may be increased by one and one-half times the decrease in the slate content under the allowable limits, but slate content specified above shall not be exceeded in any event.
A tolerance of 1% is allowed on the maximum percentage of undersize and the maximum percentage of ash content.
The maximum percentage of undersize is applicable only to anthracite as it is produced at the preparation plant.
"Slate" is defined as any material which has less than 40% of fixed carbon.
"Bone" is defined as any material which has 40% or more, but less than 75% of fixed carbon.

2/ Ash determinations are on a dry basis.

TABLE 12. - Rail shipments of Pennsylvania anthracite, 1945-47, by destinations, in net tons (Pennsylvania Department of Mines)

Destination	1945	1946	1947
New England States	4,867,051	5,367,460	4,456,476
New York	13,867,150	15,440,475	14,530,238
New Jersey	7,963,782	7,945,666	6,697,055
Pennsylvania	9,647,371	11,360,229	10,138,523
Delaware	297,056	287,173	295,288
Maryland	784,863	918,195	830,546
District of Columbia	269,278	280,324	228,383
Virginia	128,642	126,187	116,650
Ohio	109,508	96,179	98,729
Indiana	87,123	100,077	78,303
Illinois	529,549	343,354	285,648
Wisconsin	470,501	524,066	486,975
Minnesota	108,210	55,231	19,749
Michigan	239,031	285,351	354,643
Other States	72,573	65,502	62,575
Total United States	39,441,688	43,195,469	38,679,781
Canada	3,059,062	3,818,303	3,828,980
Other foreign countries	16,079	----------	1,854,042
Grand total	42,516,829	47,013,772	44,362,803

Table 13. - Truck shipments of Pennsylvania anthracite in 1947, by months, and by States of destination, in net tons 1/

Destination	January	February	March	April	May	June	July
Pennsylvania:							
Within region	428,360	421,250	387,537	405,276	253,247	224,401	316,068
Outside region	162,730	153,514	196,554	152,626	164,726	169,912	177,006
New York	40,059	35,565	35,278	26,408	22,047	27,421	29,069
New Jersey	40,517	44,041	51,623	24,768	27,901	29,881	37,974
Delaware	1,861	2,029	2,348	1,058	542	1,154	888
Maryland	6,073	5,750	6,248	2,677	2,779	4,024	4,553
District of Columbia	---	22	---	---	---	---	---
Other States	1,082	809	1,447	1,188	1,188	1,167	1,178
Total: 1947	680,682	662,980	681,035	614,001	472,430	457,960	566,736
1946	840,188	759,560	907,944	693,878	788,441	362,683	360,788

Destination	August	September	October	November	December	Total	Percent of total trucked
Pennsylvania:							
Within region	174,781	218,601	282,159	339,075	446,442	3,897,197	56.0
Outside region	146,369	184,568	220,675	171,376	191,007	2,091,063	30.0
New York	29,953	29,400	37,779	39,864	41,196	394,039	5.7
New Jersey	33,710	48,362	52,377	41,460	47,444	480,058	6.9
Delaware	794	1,407	2,685	2,452	3,799	21,017	.3
Maryland	3,311	5,137	8,029	7,033	8,562	64,176	.9
District of Columbia	---	16	---	62	72	172	(2)
Other States	960	952	1,437	1,213	1,341	13,962	.2
Total: 1947	389,878	488,443	605,141	602,535	739,863	6,961,684	100.0
1946	424,292	526,893	660,330	667,114	665,979	7,658,090	100.0

1/ Compiled from reports of Pennsylvania Department of Mines.
2/ Less than 0.05 percent.

Table 14--Statistical trends in the Pennsylvania anthracite industry, 1890-1947

Year	Production (Net tons)	Value of production	Average value per net ton	Exports 1/ (Net tons)	Imports 1/ (Net tons)	Apparent Consumption 2/ (Net tons)	Average number of employees	Average number of days worked	Average tons per man per day	Average tons per man per year	Quantity cut by machines 3/ (Net tons)	Quantity produced by stripping 4/ (Net tons)	Quantity loaded mechanically underground 5/ (Net tons)
1890	46,468,641	$66,383,772	$1.43	889,655	16,962	45,596,000	126,000	200	1.85	369	---	---	---
1891	50,665,431	73,944,735	1.46	964,601	42,120	49,743,000	126,350	203	1.98	401	---	---	---
1892	52,472,504	82,442,000	1.57	953,836	72,865	51,592,000	129,050	198	2.06	407	---	---	---
1893	53,967,543	85,687,078	1.59	1,493,281	60,220	52,534,000	132,944	197	2.06	406	---	---	---
1894	51,921,121	78,488,063	1.51	1,613,500	100,876	50,408,000	131,603	190	2.08	395	---	---	---
1895	57,999,337	82,019,272	1.41	1,647,195	158,297	56,510,000	142,917	196	2.07	405	---	---	---
1896	54,346,081	81,748,651	1.50	1,512,000	113,892	52,948,000	148,991	174	2.10	365	---	---	---
1897	52,611,681	79,301,954	1.51	1,454,620	27,478	51,185,000	149,884	150	2.34	351	---	---	---
1898	53,382,645	75,414,537	1.41	1,513,062	3,527	51,873,000	145,504	152	2.41	367	---	---	---
1899	60,418,005	88,142,130	1.46	1,912,732	68	58,505,000	139,608	173	2.50	433	---	---	---
1900	57,367,915	85,757,851	1.49	1,853,163	132	55,515,000	144,206	166	2.40	398	---	---	---
1901	67,471,667	112,504,020	1.67	2,232,504	320	65,239,000	145,309	196	2.37	464	---	---	---
1902	41,373,595	76,173,586	1.84	1,016,934	190,636	40,547,000	148,141	116	2.40	279	---	---	---
1903	74,607,068	152,036,448	2.04	2,249,920	196,837	72,554,000	150,483	206	2.41	496	---	---	---
1904	73,156,709	138,974,020	1.90	2,495,799	81,232	70,742,000	155,861	200	2.35	469	---	---	---
1905	77,659,850	141,879,000	1.83	2,497,581	38,350	75,201,000	165,406	215	2.18	470	---	---	---
1906	71,282,411	131,917,694	1.85	2,483,005	36,236	68,836,000	162,355	195	2.25	439	---	---	---
1907	85,604,312	163,584,056	1.91	3,021,841	11,085	82,594,000	167,234	220	2.33	512	---	---	---
1908	83,268,754	158,178,849	1.90	3,082,641	18,462	80,205,000	174,174	200	2.39	478	---	---	---
1909	81,070,359	149,181,587	1.84	3,183,840	3,574	77,890,000	6/ 171,195	205	(7)	(7)	---	---	---
1910	84,485,236	160,275,302	1.90	3,384,222	9,180	81,110,000	169,497	229	2.17	498	---	---	---
1911	90,464,067	175,189,392	1.94	3,980,479	2,759	86,486,000	172,585	246	2.13	524	69,907	---	---
1912	84,361,598	177,622,626	2.11	4,131,444	1,870	80,232,000	174,030	231	2.10	485	246,216	---	---
1913	91,524,922	195,181,127	2.13	4,652,912	1,004	85,474,000	175,745	257	2.02	520	555,776	---	---
1914	90,821,507	188,181,399	2.07	4,289,873	17,696	84,041,000	179,679	245	2.06	505	916,596	---	---
1915	88,995,061	184,653,498	2.07	3,965,255	814	88,144,000	176,552	230	2.19	504	1,307,756	1,121,603	---
1916	87,578,493	202,009,561	2.31	4,665,530	6,000	87,118,000	159,869	253	2.16	548	1,839,506	1,987,800	---
1917	99,611,811	283,650,723	2.85	6,007,306	13,000	94,068,000	154,174	285	2.27	646	1,955,223	2,301,588	---
1918	98,826,084	336,480,347	3.40	4,967,808	37,272	92,775,000	147,121	293	2.29	672	1,857,514	2,360,183	---
1919	88,092,201	364,926,950	4.14	4,976,598	82,818	81,518,000	154,571	266	2.14	570	1,575,205	2,006,879	---
1920	89,598,249	434,252,198	4.85	5,403,749	31,748	85,786,000	145,074	271	2.28	618	938,073	2,054,441	---
1921	90,473,451	452,304,903	5.00	4,677,368	8,894	81,950,000	159,499	271	2.09	567	979,145	2,027,790	---
1922	54,683,022	273,700,125	5.01	2,649,457	233,528	56,799,000	156,849	151	2.31	349	502,793	949,745	---
1923	93,339,009	506,786,768	5.43	5,090,138	300,360	86,914,000	157,743	268	2.21	592	1,208,542	2,263,098	---
1924	87,926,862	477,230,852	5.43	4,017,785	117,951	80,717,000	160,009	274	2.00	550	1,423,884	1,865,677	---
1925	61,817,149	327,664,512	5.30	3,179,006	382,894	64,061,000	160,312	182	2.12	386	941,189	1,578,478	---
1926	84,437,452	474,164,252	5.62	4,029,683	813,956	77,221,000	165,386	244	2.09	511	931,650	2,401,356	---
1927	80,095,564	420,941,726	5.26	3,325,507	119,030	74,672,000	165,259	225	2.15	485	1,171,888	2,153,156	6/ 2,223,281
1928	75,348,069	393,637,690	5.22	3,336,272	384,707	73,650,000	160,681	217	2.17	469	1,289,809	2,422,924	6/ 2,351,074
1929	73,828,195	385,642,751	5.22	3,406,369	487,172	71,457,000	151,501	225	2.16	487	1,159,910	1,911,766	3,470,158
1930	69,384,837	354,574,191	5.11	2,551,659	674,812	67,628,000	150,804	208	2.21	460	1,410,123	2,536,288	4,467,750
1931	59,645,652	296,354,586	4.97	1,778,308	637,951	58,408,000	139,431	181	2.37	428	1,587,265	3,813,237	4,384,780
1932	49,855,221	222,375,129	4.46	1,303,355	607,097	50,500,000	121,243	162	2.54	411	1,674,223	3,980,973	5,433,340
1933	49,541,344	206,718,405	4.17	1,034,562	456,252	49,600,000	104,633	182	2.60	473	1,648,249	4,932,069	6,557,267
1934	57,168,291	244,152,245	4.27	1,297,610	478,118	55,500,000	109,050	207	2.53	524	1,981,088	5,798,138	9,284,486
1935	52,158,783	210,130,565	4.03	1,608,549	571,439	51,100,000	103,269	189	2.68	505	1,848,095	5,187,072	9,279,057
1936	54,579,535	227,003,538	4.16	1,678,024	614,639	53,200,000	102,081	192	2.79	535	2,162,744	6,203,267	10,827,946
1937	51,856,433	197,598,849	3.81	1,914,173	395,737	50,400,000	99,085	189	2.77	523	1,984,512	5,696,018	10,683,837
1938	46,099,027	180,600,167	3.92	1,908,911	362,895	45,200,000	96,417	171	2.79	478	1,588,407	5,095,341	10,151,669
1939	51,487,377	187,175,324	3.64	2,590,000	298,153	49,700,000	93,138	183	3.02	553	1,881,884	5,486,479	11,773,833
1940	51,484,640	205,489,814	3.99	2,667,632	135,436	49,000,000	91,313	186	3.02	562	1,816,483	6,352,700	12,326,000
1941	8/ 56,368,267	240,275,126	4.26	3,380,189	74,669	52,700,000	88,054	203	9/ 3.04	617	1,855,422	7,316,574	13,441,987
1942	8/ 60,327,729	271,673,380	4.50	4,438,588	140,115	56,500,000	82,121	239	9/ 2.95	705	2,285,640	9,070,933	14,741,459
1943	8/ 60,643,620	306,816,018	5.06	4,138,680	166,020	57,100,000	79,153	270	9/ 2.78	751	1,624,883	8,989,387	14,745,793
1944	8/ 63,701,363	354,582,884	5.57	4,185,933	11,847	59,400,000	77,591	292	9/ 2.79	815	1,336,082	10,953,030	14,975,146
1945	8/ 54,933,909	323,944,435	5.90	3,691,247	149	51,600,000	72,842	269	9/ 2.79	[illegible]	1,210,171	10,056,325	13,927,955
1946	8/ 60,506,873	413,417,070	6.83	6,497,245	9,556	53,900,000	78,145	271	9/ 2.84	[illegible]	1,232,828	12,858,930	15,619,162
1947	57,190,009	413,019,486	7.22	8,509,995	10,350	48,200,000	78,600	259	2.78	[illegible]	[illegible]09,983	12,603,545	16,054,011

1/ U. S. Department of Commerce.
2/ Prior to 1913 the figures of consumption take no account of producers' stocks, there being no data available for this item.
3/ Data first collected in 1911.
4/ Data first collected in 1915.
5/ Data first collected in 1929.
6/ As reported by the Commonwealth of Pennsylvania, Department of Mines.
7/ Data not available.
8/ Includes some bootleg coal purchased by legitimate operators and prepared at their breakers.
9/ Output per man per day calculated on legitimate tonnages only; "bootleg" purchases excluded.

TABLE 18 --Total supplies of fuels commonly used for space-heating purposes in the United States, 1937 and 1944-47

(Wherever available, figures represent quantity actually consumed for domestic heating or for space heating offices, apartments, hotels, schools, hospitals, etc. Where such figures are not available but where the fuel is known to be used chiefly for domestic or space-heating purposes, total production (or imports) is shown to indicate trend of growth.)

	1937	1944	1945	1946	1947
Solid Fuels (net tons)					
Anthracite:					
Production:					
Shipments of domestic sizes----------------	29,092,974	34,343,434	28,610,174	31,607,802	29,210,251
Shipments of Buckwheat No. 1--------------	6,859,707	8,083,664	6,681,171	7,181,843	6,557,076
Shipments of smaller steam sizes 1/-------	10,250,463	15,213,472	13,251,106	15,318,942	15,285,086
Local sales-----------------------------------	2,981,391	3,765,641	4,273,864	4,435,536	4,232,871
Total commercial production---------------	49,184,535	61,406,211	52,816,315	58,544,123	55,285,284
Exports 2/---------------------------------	1,914,173	4,185,933	3,691,247	6,497,245	8,509,995
Imports for consumption 2/----------------	395,737	11,847	149	9,556	10,350
Fuel briquets 3/----------------------------------	977,254	2,301,827	2,588,819	2,841,341	2,923,223
Packaged-fuel production-------------------------	146,037	175,770	208,143	190,919	182,881
Coke:					
Oven coke sales for domestic use------------	7,807,792	6,443,329	6,574,526	4,947,085	3,917,402
Beehive sales for domestic use--------------	299,726	274,214	200,982	149,648	59,926
Imports for consumption 2/-----------------	286,364	63,004	51,964	52,188	104,093
Retort coke sales--------------------------------	4/ 350,700	423,675	431,361	355,336	282,666
Petroleum-coke production----------------------	1,306,600	1,803,400	2,023,000	2,124,200	2,415,400
Anthracite and semianthracite production outside of Pennsylvania---------------------	468,852	(5)	(5)	(5)	(5)
Lignite production 6/----------------------------	3,218,419	2,554,160	2,668,310	2,667,619	(7)
Bituminous-coal sales for domestic use---------	(8)	(8)	(8)	(8)	(8)
Oil (Barrels of 42 Gallons)					
Oil sales for heating buildings:					
Range oil--	32,259,000	47,636,000	51,021,000	60,564,000	9/72,000,000
Heating oils: 10/					
Domestic-------------------------------------	116,617,000	152,203,000	165,216,000	192,371,000	9/234,000,000
Commercial------------------------------------					
Liquefied petroleum gases domestic------------	972,000	10,442,000	12,697,000	18,059,000	27,394,000
Gas (Million Cubic Feet)					
Natural-gas consumption for domestic and commercial use 11/----------------------------	489,234	782,930	837,499	902,622	(7)
Manufactured-gas sales for: 12/					
Domestic use------------------------------------	193,325	215,157	311,043	335,369	(7)
House heating-----------------------------------	45,200	84,766			

1/ A considerable part of the smaller steam sizes is used by industries, railroads, and public utilities.
2/ U. S. Department of Commerce.
3/ Production plus imports less exports.
4/ Partly estimated.
5/ Data not available.
6/ An estimated one-half is used for domestic purposes.
7/ Data not yet available.
8/ Exact data not available.
9/ Estimated.
10/ Includes all grades of fuel oil used for heating buildings.
11/ Includes gas used for heating offices, hotels, apartments, hospitals, stores, and other large buildings, as well as houses.
12/ American Gas Association.

TABLE 19. - Apparent consumption of anthracite and selected competitive fuels in the principal anthracite markets, 1944-47

(Thousands of net tons)

Fuel	New England	New York	New Jersey	Delaware	Maryland	Pennsylvania	District of Columbia	Total: Thousands of net tons	Total: Percent of total fuels
Anthracite:									
All users: 1/									
1944	6,004	2/ 17,489	2/ 10,254	380	1,016	17,744	325	53,212	62.3
1945	4,867	2/ 14,488	2/ 8,666	343	868	15,776	270	45,278	56.5
1946	5,367	2/ 16,103	2/ 8,663	322	980	17,525	281	49,241	56.0
1947	4,457	2/ 14,924	2/ 7,177	316	895	16,127	228	44,124	(3)
Imports: 4/									
1944	12	--------	--------	--------	--------	--------	--------	12	(5)
1945	--------	--------	--------	--------	--------	--------	--------	(6)	(5)
1946	--------	--------	--------	--------	--------	--------	--------	--------	--------
1947	--------	7	--------	--------	--------	--------	--------	7	(3)
Briquets:									
Domestic use:									
1944	76	48	12	3	7	45	1	192	.2
1945	83	67	16	3	10	52	2	233	.3
1946	121	94	28	4	21	50	2	320	.4
1947	49	49	32	1	29	126	2	288	(3)
Imports: 4/									
1944	--------	--------	--------	--------	--------	--------	--------	(6)	(5)
1945	--------	--------	--------	--------	--------	--------	--------	(6)	(5)
1946	--------	--------	--------	--------	--------	--------	--------	(6)	(5)
1947	--------	--------	--------	--------	--------	--------	--------	(6)	(3)
Coke:									
Domestic use:									
1944	1,352	1,232	464	7	4	386	1	3,446	4.1
1945	1,371	1,375	552	5	2	334	2	3,641	4.6
1946	1,085	987	469	3	5	291	(6)	2,840	3.2
1947	834	693	407	(6)	1	220	--------	2,155	(3)
Imports: 4/									
1944	(6)	23	--------	--------	--------	--------	--------	23	(5)
1945	1	19	--------	--------	--------	--------	--------	20	(5)
1946	(6)	11	--------	--------	--------	--------	--------	11	(5)
1947	1	--------	--------	--------	--------	--------	--------	1	(3)
Oil: Heating and range: 7/									
1944	10,411	9,554	4,442	140	988	2,496	526	28,557	33.4
1945	11,205	10,095	5,037	154	1,136	2,728	584	30,939	38.6
1946	12,924	11,554	5,713	184	1,327	3,175	665	35,542	40.4
1947	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Total fuel: 8/									
1944	17,855	28,346	15,172	530	2,015	20,671	853	85,442	100.0
1945	17,527	26,044	14,271	505	2,016	18,890	858	80,111	100.0
1946	19,497	28,749	14,873	513	2,333	21,041	948	87,954	100.0
1947	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)

1/ Pennsylvania Department of Mines; illicit coal not included.
2/ An important but undetermined part of anthracite shown as shipped to New Jersey is reshipped to New York City.
3/ Data not yet available.
4/ U. S. Department of Commerce.
5/ Less than 0.05 percent.
6/ Less than 1,000 tons.
7/ Converted to coal equivalent upon basis of 4 barrels of fuel oil equaling 1 ton of coal.
8/ Excludes bituminous coal.

TABLE 20. - Receipts of anthracite in New England, 1917, 1920, 1923, 1927, and 1940-47 in thousands of net tons

Year	Receipts by tidewater 1/						Receipts by rail 1/	Imports 2/	Total receipts of Pennsylvania anthracite 3/
	Maine	New Hampshire	Massachusetts	Rhode Island	Connecticut	Total			
1917	432	47	2,222	555	1,165	4,421	7,259	1	11,679
1920	307	6	2,015	450	743	3,521	7,804	1	11,324
1923	437	27	2,216	511	891	4,082	8,102	145	12,039
1927	242	33	1,220	311	615	2,421	6,725	106	9,040
1940	48	4	350	74	172	648	4,174	135	4,687
1941	57	9	348	58	210	682	4,870	75	5,477
1942	(4)	(4)	(4)	(4)	(4)	581	5,393	139	5,835
1943						575	5,310	164	5,721
1944						398	5,836	12	6,222
1945						331	4,750	(5)	5,081
1946						399	5,244	------	5,643
1947						240	4,498	------	4,738

1/ Commonwealth of Massachusetts, Division on the Necessaries of Life.
2/ U. S. Department of Commerce.
3/ Total receipts by rail and by tidewater less imports.
4/ Data not available.
5/ Less than 1,000 tons.

TABLE 21. - Average sales realization per net ton on Pennsylvania anthracite shipments from breakers, 1945-47, by regions and sizes

(Value does not include margins of separately incorporated sales companies)

Size	Lehigh region			Schuylkill region			Wyoming region		
	1945	1946	1947	1945	1946	1947	1945	1946	1947
Lump 1/ and Broken ----	$7.98	$9.14	$10.21	$8.17	$9.43	$10.10	$8.00	$9.26	$9.87
Egg ------------------	8.10	9.32	10.23	8.18	9.48	10.11	8.11	9.33	10.01
Stove ----------------	8.11	9.42	10.23	8.18	9.52	10.02	8.07	9.33	9.98
Chestnut -------------	8.09	9.40	10.24	8.20	9.54	10.07	8.09	9.34	9.98
Pea ------------------	6.56	7.72	8.44	6.66	7.89	8.17	6.60	7.74	8.19
Total domestic ------	7.86	9.15	9.97	7.93	9.27	9.77	7.95	9.19	9.81
Buckwheat No. 1 -------	4.76	5.51	5.97	4.80	5.55	5.76	4.79	5.51	5.81
Buckwheat No. 2 (Rice)-	3.87	4.50	4.93	3.89	4.54	4.78	3.95	4.52	4.84
Buckwheat No. 3 (Barley)	2.67	3.09	3.57	2.61	3.09	3.52	2.72	3.16	3.63
Buckwheat No. 4 -------	2.02	2.26	2.65	1.81	2.14	2.39	1.82	1.85	2.08
Other (including silt)-	1.62	1.95	2.21	1.48	1.83	2.16	1.48	1.86	2.15
Total steam ---------	3.36	3.88	4.25	3.43	3.94	4.09	3.89	4.38	4.67
Total all sizes -----	5.91	6.83	7.43	5.81	6.78	6.97	6.80	7.81	8.27

Size	Sullivan County			Total					
				Excluding Sullivan County			Including Sullivan County		
Lump 1/ and Broken ----	-----	-----	-----	$8.02	$9.23	$10.07	$8.02	$9.23	$10.07
Egg ------------------	-----	-----	-----	8.13	9.38	10.08	8.13	9.38	10.08
Stove ----------------	$7.41	$9.19	$11.36	8.11	9.40	10.03	8.10	9.40	10.03
Chestnut -------------	7.53	9.13	10.20	8.12	9.42	10.05	8.12	9.42	10.05
Pea ------------------	6.40	7.95	9.28	6.62	7.79	8.23	6.62	7.79	8.23
Total domestic ------	7.27	8.87	10.12	7.93	9.21	9.82	7.93	9.21	9.82
Buckwheat No. 1 -------	4.08	4.70	3.98	4.79	5.53	5.82	4.79	5.53	5.82
Buckwheat No. 2 (Rice)-	2.55	2.62	3.14	3.91	4.52	4.83	3.91	4.52	4.83
Buckwheat No. 3 (Barley)	-----	-----	-----	2.65	3.11	3.56	2.65	3.11	3.56
Buckwheat No. 4 -------	-----	-----	-----	1.85	2.09	2.38	1.85	2.09	2.38
Other (including silt)-	2.27	1.75	1.93	1.57	1.90	2.17	1.58	1.90	2.17
Total steam ---------	2.99	3.31	2.39	3.56	4.08	4.32	3.56	4.08	4.32
Total all sizes -----	5.83	6.20	6.54	6.26	7.25	7.65	6.26	7.25	7.65

1/ Quantity of Lump included is insignificant.

TABLE 22. - Average value per ton of Pennsylvania anthracite shipments, local sales, colliery fuel, and total production, 1946-47, by regions 1/

(Values include washery and dredge coal)

Region	1946				1947			
	Shipments	Local sales	Colliery fuel	Total production	Shipments	Local sales	Colliery fuel	Total production
Lehigh ---------------	$6.72	$8.24	$4.22	$6.73	$7.28	$8.63	$4.85	$7.26
Schuylkill -----------	6.36	6.47	2.33	6.32	6.58	6.77	2.14	6.54
Wyoming --------------	7.62	7.19	2.26	7.30	8.05	7.70	2.54	7.74
Total, excluding Sullivan County ---	6.97	7.10	2.56	6.83	7.36	7.49	2.84	7.22
Sullivan County -------	6.20	6.43	5.78	6.26	6.54	6.36	----	6.48
Grand total ---------	6.97	7.10	2.56	6.83	7.36	7.48	2.84	7.22

1/ Value given for shipments is value at which coal left possession of producing company and does not include margins of separately incorporated sales companies.

Table23- Retail prices of selected fuels in 1947, by cities and months 1/

[Coal and coke, per net ton; heating oil, per 100 gallons]

City and fuel	January	February	March	April	May	June	July	August	September	October	November	December
Baltimore, Md.: 2/												
Anthracite:												
Stove	$16.29	$16.33	$16.32	$16.32	$15.60	$15.62	$16.19	$17.34	$17.34	$17.60	$17.60	$17.80
Buckwheat No. 1	12.35	12.39	12.38	12.38	11.66	11.68	12.14	13.06	13.06	13.06	13.06	13.41
Bituminous coal, low-volatile stove	----	----	----	----	----	----	----	----	----	----	----	----
Coke, egg	----	----	----	----	----	----	----	----	----	----	----	----
Heating oil:												
Fuel oil No. 2	8.90	8.90	8.90	9.70	9.70	9.70	9.89	10.04	10.11	9.89	10.71	10.71
Fuel oil No. 3	----	----	----	----	----	----	----	----	----	----	----	----
Boston, Mass.:												
Anthracite:												
Stove	18.66	18.65	18.65	18.65	17.65	17.65	18.22	19.22	19.25	19.50	19.70	19.80
Buckwheat No. 1	13.96	13.95	13.95	13.95	13.45	13.45	13.75	14.40	14.44	14.69	14.81	14.88
Bituminous coal, low-volatile stove	----	----	----	----	----	----	----	----	----	----	----	----
Coke, egg	17.96	17.95	17.95	17.95	16.85	16.85	17.50	18.60	18.60	18.60	18.85	19.25
Heating oil:												
Fuel oil No. 2	8.80	8.70	8.70	9.40	9.40	9.40	9.40	9.80	9.80	9.80	10.60	11.14
Fuel oil No. 3	----	----	----	----	----	----	----	----	----	----	----	----
Buffalo, New York: 3/												
Anthracite:												
Stove	16.80	16.80	16.80	16.80	16.40	16.48	16.77	17.89	17.99	18.16	18.22	18.22
Buckwheat No. 1	----	----	----	----	----	----	----	----	----	----	----	----
Bituminous coal, low-volatile stove	----	----	----	----	----	----	----	----	----	----	----	----
Coke, nut	14.30	14.30	14.30	14.30	13.90	13.90	14.42	15.50	15.50	15.81	15.81	16.01
Heating oil:												
Fuel oil No. 2	10.43	10.30	10.30	11.00	11.00	11.00	11.11	11.51	11.51	11.51	12.42	13.03
Fuel oil No. 3	10.50	10.30	10.30	11.00	11.00	11.00	11.11	11.51	11.51	11.51	12.42	13.33
Milwaukee, Wis.:												
Anthracite:												
Stove	18.09	18.09	18.12	18.12	18.58	18.20	18.42	19.55	19.55	19.55	20.05	20.05
Buckwheat No. 1	----	----	----	----	----	----	----	----	----	----	----	----
Bituminous coal, low-volatile stove	14.32	14.62	14.62	14.62	14.90	14.90	15.42	17.00	17.00	17.00	17.45	17.40
Coke, nut	15.94	16.38	16.38	16.38	16.38	16.38	16.38	18.38	18.38	18.38	18.38	18.38
Heating oil:												
Fuel oil No. 2	9.60	9.60	10.00	10.10	10.10	10.60	10.60	10.60	11.10	11.60	12.20	13.64
Fuel oil No. 3	9.60	9.60	9.98	10.10	10.10	10.60	10.60	10.60	11.10	11.65	12.20	13.68
New York, New York: 4/												
Anthracite:												
Stove	17.38	17.38	17.38	17.34	16.52	16.52	16.87	17.97	18.17	18.29	18.53	18.53
Buckwheat No. 1 5/	11.82	----	11.82	11.78	11.30	11.30	11.46	12.17	12.32	12.42	12.68	12.68
Bituminous coal, low-volatile stove	----	----	----	----	----	----	----	----	----	----	----	----
Coke, nut	17.22	17.22	17.22	17.23	17.25	17.50	17.50	18.79	18.84	18.86	19.21	19.21
Heating oil:												
Fuel oil No. 2	8.87	8.57	8.81	9.54	9.53	9.53	9.55	10.02	10.13	10.11	11.08	11.81
Fuel oil No. 3	----	----	----	----	----	----	----	----	----	----	----	----
Philadelphia, Pa.:												
Anthracite:												
Stove	16.35	16.35	16.35	16.35	15.75	15.75	16.09	16.95	17.36	17.58	17.58	17.60
Buckwheat No. 1	11.95	11.95	11.95	11.95	11.50	11.50	11.80	12.25	12.33	12.48	12.48	12.48
Bituminous coal, low-volatile stove	----	----	----	----	----	----	----	----	----	----	----	----
Coke, nut	16.25	16.25	16.25	16.25	15.50	15.50	16.12	16.25	16.25	16.28	17.95	17.95
Heating oil:												
Fuel oil No. 2	8.61	8.61	8.66	9.16	9.16	9.16	9.16	9.76	9.76	9.76	10.16	11.02
Fuel oil No. 3	----	----	----	----	----	----	----	----	----	----	----	----
Portland, Maine:												
Anthracite:												
Stove	18.58	18.58	18.59	18.46	18.00	18.00	18.00	19.25	19.25	19.30	19.45	19.50
Buckwheat No. 1	13.68	13.68	13.68	13.68	13.45	13.45	13.45	14.25	14.30	14.30	14.49	14.55
Bituminous coal, low-volatile stove	----	----	----	----	----	----	----	----	----	----	----	----
Coke, egg	17.82	17.63	17.63	17.48	17.08	17.08	17.33	18.50	18.50	18.57	18.78	18.85
Heating oil:												
Fuel oil No. 2	8.80	8.80	8.80	9.50	9.50	9.50	9.50	9.82	9.82	9.82	10.62	11.10
Fuel oil No. 3	----	----	----	----	----	----	----	----	----	----	----	----
Washington, D. C.:												
Anthracite:												
Stove	16.61	16.61	16.61	16.61	15.61	15.86	16.11	17.25	17.51	17.75	17.75	17.75
Buckwheat No. 1	12.07	12.07	12.07	12.07	11.57	11.72	11.87	12.75	12.98	13.09	13.09	13.09
Bituminous coal, low-volatile stove	12.73	12.73	12.75	12.75	12.73	12.73	13.15	14.35	14.35	14.76	14.94	14.99
Coke, egg	----	----	----	----	----	----	----	----	----	----	----	----
Heating oil:												
Fuel oil No. 2	9.30	9.30	9.30	10.10	10.10	10.10	10.10	10.10	10.60	10.48	10.90	10.90
Fuel oil No. 3	----	----	----	----	----	----	----	----	----	----	----	----

1/ Compiled from reports of Bureau of Labor Statistics. Prices are as of the 15th of each month. Data are preliminary.
2/ Includes 2 percent sales tax July-December.
3/ Includes 1 percent sales tax July-December.
4/ Includes 2 percent sales tax.
5/ Commercial.

TABLE 24. - Men employed and days worked at operations producing Pennsylvania anthracite in 1947, by regions 1/
(Includes operations of strip contractors)

Region	Average number of men employed								Average number of days plant operated	Man-days of labor	Average tons per man per day
	Underground			Surface				Grand total			
	Miners and their laborers	Other	Total underground	In strip pits	In preparation plant	Other	Total surface				
Lehigh:											
Breaker	5,196	3,306	8,502	1,665	980	2,398	5,043	13,545	244	3,311,022	3/2.76
Washery 2/	------	------	------	6	66	89	161	161	195	31,332	10.10
Dredge	------	------	------	-----	6	9	15	15	174	2,616	17.77
Total Lehigh	5,196	3,306	8,502	1,671	1,052	2,496	5,219	13,721	244	3,344,970	3/2.84
Schuylkill:											
Breaker	7,302	5,230	12,532	4,481	1,873	3,934	10,288	22,820	241	5,492,018	3/3.33
Washery 2/	------	------	------	48	48	362	458	458	151	68,944	3/11.99
Dredge	------	------	------	-----	226	291	517	517	250	129,475	8.97
Total Schuylkill	7,302	5,230	12,532	4,529	2,147	4,587	11,263	23,795	239	5,690,437	3.57
Wyoming:											
Breaker	20,832	10,556	31,388	1,055	1,891	6,404	9,350	40,738	277	11,279,881	2.29
Washery 2/	------	------	------	-----	73	151	224	224	184	41,171	21.63
Dredge	------	------	------	-----	4	3	7	7	228	1,596	7.35
Total Wyoming	20,832	10,556	31,388	1,055	1,968	6,558	9,581	40,969	276	11,322,648	2.36
Total, excluding Sullivan County:											
Breaker	33,330	19,092	52,422	7,201	4,744	12,736	24,681	77,103	260	20,082,921	3/2.65
Washery 2/	------	------	------	54	187	602	843	843	168	141,447	3/14.38
Dredge	------	------	------	-----	236	303	539	539	248	133,687	9.12
Total	33,330	19,092	52,422	7,255	5,167	13,641	26,063	78,485	259	20,358,055	3/2.78
Sullivan County	54	21	75	9	22	9	40	115	123	14,146	3.04
Grand total	33,384	19,113	52,497	7,264	5,189	13,650	26,103	78,600	259	20,372,201	3/2.78

1/ Men employed in "bootleg" operations excluded.

2/ Represents washeries for which both production and employment were separately reported.

3/ Output per man per day calculated on legitimate tonnages only; "bootleg" purchases excluded.

TABLE 25. - Men employed at operations producing Pennsylvania anthracite, 1946-47, by counties

(Includes operations of strip contractors)

County	1946	1947	County	1946	1947
Berks, Lancaster, Lebanon, Northampton, and Snyder 1/	129	149	Northumberland	5,805	6,380
Carbon	5,284	5,163	Schuylkill	18,245	18,010
Columbia	2,015	2,110	Sullivan	168	115
Dauphin	361	384	Susquehanna and Wayne	62	54
Lackawanna	12,012	12,198	Total	78,145	78,600
Luzerne	34,064	34,037			

1/ Counties producing dredge coal only.

TABLE 26. - Power shovels and draglines used in stripping Pennsylvania anthracite, by type of power, 1945-47

Type of power	1945			1946			1947		
	Number of power shovels	Number of draglines	Total	Number of power shovels	Number of draglines	Total	Number of power shovels	Number of draglines	Total
Gasoline ---	38	21	59	68	20	88	75	23	98
Electric ---	29	38	67	33	44	77	47	46	93
Diesel -----	89	202	291	155	254	409	158	256	414
All other --	4	-------	4	6	-------	6	4	-------	4
	160	261	421	262	318	580	284	325	609

TABLE 27. - Relative growth of Pennsylvania anthracite mined from strip pits, 1915, 1920, 1925, 1930, and 1944-47

	Net tons mined by stripping	Percent of fresh-mined total that was stripped	Number of men employed	Average number of days worked
1915	1,121,603	(1)	(1)	(1)
1920	2,054,441	2.5	(1)	(1)
1925	1,578,478	2.7	(1)	(1)
1930	2,536,288	3.7	(1)	(1)
1944	10,953,030	20.8	5,595	246
1945	10,056,325	22.4	5,314	238
1946	12,858,930	25.2	6,152	252
1947:				
Lehigh region	2,708,133	32.1	1,671	245
Schuylkill region	7,385,902	46.8	4,529	238
Wyoming region	2,506,010	9.9	1,055	254
Total, excluding Sullivan County	12,600,045	25.4	7,255	242
Sullivan County	3,500	8.7	9	54
Grand total, 1947	12,603,545	25.4	7,264	242

1/ Data not available.

TABLE 28. - Pennsylvania anthracite produced by dredges in 1947, by rivers

River (including tributaries)	Net tons	Value	
		Total	Average
Lehigh	46,478	$93,431	$2.01
Schuylkill	158,102	314,879	1.99
Susquehanna	1,015,126	2,071,758	2.04
	1,219,706	2,480,068	2.03

TABLE 29. - Culm-bank coal put through breakers, 1943-47, by fields, in net tons

Year	Northern	Eastern Middle	Western Middle	Southern	Total
1943	1/ 2/ 629,713	1,087,648	2,102,124	1,208,414	1/ 5,027,899
1944	2/ 1,156,489	743,867	2,528,221	1,699,875	6,128,452
1945	1/ 2/ 996,037	1/698,876	2,335,200	2,206,187	1/ 6,236,300
1946	2/ 856,247	708,012	1,902,369	1,845,163	5,311,791
1947	1/ 525,732	249,151	1,607,166	2,099,299	4,481,348

1/ Includes some washery coal.

2/ A small quantity of culm-bank coal was put through breakers in Sullivan County.

TABLE 30. - Pennsylvania anthracite loaded mechanically underground, 1943-47

Year	Scrapers		Mobile Loaders		Conveyors and pit-car loaders 1/		Total loaded mechanically	
	Number of units	Net tons loaded	Number of units	Net tons loaded	Number of units	Net tons loaded	Number of units	Net tons loaded
1943	510	2,750,256	5	57,033	2,701	11,938,504	3,216	14,745,793
1944	491	2,811,824	12	69,837	2,807	12,093,485	3,310	14,975,146
1945	548	2,747,254	20	146,209	3,006	11,034,492	3,574	13,927,955
1946	564	2,714,051	27	81,545	3,233	12,823,566	3,824	15,619,162
1947	594	2,371,370	25	132,237	3,457	13,550,404	4,076	16,054,011

1/ Includes duckbills and other self-loading conveyors.

TABLE 31. - Relative growth of mechanical loading, hand loading, and stripping in Pennsylvania anthracite mines, 1943-47

(Mechanical loading includes coal handled on pit-car loaders and hand-loaded face conveyors)

Year	Net tons			Index numbers: 1927=100		
	Mechanical loading underground	Stripping	Hand loading	Mechanical loading underground	Stripping	Hand loading
1943	14,745,793	8,989,387	27,990,005	663	417	39
1944	14,975,146	10,953,030	26,800,270	674	509	38
1945	13,927,955	10,056,325	20,957,744	626	467	29
1946	15,619,162	12,858,930	22,465,295	703	597	31
1947	16,054,011	12,603,545	20,909,101	722	585	29

TABLE 32. - Pennsylvania anthracite loaded mechanically underground in 1947, by fields, in net tons

Field	Scraper loaders 1/	Pit-car loaders	Hand-loaded face conveyors, 2/ all types	Total mechanically loaded underground
Northern	2,143,164	336,303	10,960,358	13,439,825
Eastern Middle	92,773	26,648	501,194	620,615
Western Middle	249,614	87,954	1,141,231	1,478,799
Southern	18,056	8,000	488,716	514,772
Total	2,503,607	458,905	13,091,499	16,054,011

1/ Includes mobile loaders.
2/ Shaker chutes, etc., including those equipped with duckbills.

TABLE 33. - Anthracite exported from the United States, 1946-47, by countries and customs districts, in net tons

(U. S. Department of Commerce)

Country	1946	1947
North America:		
Bermuda	278	557
Canada	4,513,637	4,470,034
Mexico	4,450	8,988
Newfoundland and Labrador	4,538	7,880
West Indies:		
British	157	787
Cuba	51,896	23,794
Other North America	14	40
South America:		
Argentina	8	25,405
Bolivia	34	53
Brazil	67	901
Chile	73	575
Peru	102	--------
Surinam	2	570
Uruguay	250	--------
Other South America	--------	6
Europe:		
Belgium and Luxembourg	777,372	1,367,636
Denmark	--------	40,550
Eire	11	9,177
France	758,226	1,404,785
Italy	240,530	157,945
Netherlands	87,991	41,907
Norway	9,099	201,135
Portugal	280	2,464
Sweden	--------	577,999
Switzerland	24,927	114,851
Yugoslavia	19,825	--------
Other Europe	--------	14
Asia:		
British Malaya	--------	10,044
China	3,476	286
Palestine and Trans-Jordan	--------	28,369
Other Asia	--------	100
Africa:		
Belgian Congo	--------	2,448
Egypt	--------	10,640
Other Africa	2	55
	6,497,245	8,509,995

Customs district	1946	1947
North Atlantic:		
Connecticut	2,987	--------
Maine and New Hampshire	36,661	42,365
Massachusetts	1	38
New York	8,123	787,549
Philadelphia	1,791,142	2,738,308
Rhode Island	--------	3,930
South Atlantic:		
Maryland	124,069	511,904
Puerto Rico	12	10
South Carolina	--------	2
Virginia	173	2,150
Gulf Coast:		
Florida	96	47
Galveston	56,824	5
Mobile	2	570
New Orleans	96	125
Mexican border:		
Arizona	9	23
El Paso	58	13
Laredo	100	7
Pacific coast:		
Alaska	29	55
San Diego	15	45
San Francisco	103	--------
Washington	3,563	93
Northern border:		
Buffalo	2,428,686	2,639,285
Dakota	5,167	4,383
Duluth and Superior	21,737	8,557
Michigan	2,119	1,454
Ohio	16,357	6,197
Rochester	182,009	153,115
St. Lawrence	1,815,071	1,608,294
Vermont	2,036	1,471
	6,497,245	8,509,995

TABLE 34. - Anthracite imported for consumption in the United States, 1946-47, by countries and customs districts, in net tons

(U. S. Department of Commerce)

Country	1946	1947
Canada	9,556	10,293
Chile	--------	7
Mexico	--------	50
	9,556	10,350

Customs district	1946	1947
Alaska	41	--------
Laredo	--------	50
Montana and Idaho	9,515	10,293
New York	--------	7
	9,556	10,350

TABLE 35. - Coal and coke industry and foreign trade of Canada, 1946-47 1/
(Thousands of net tons)

	Coal								Coke from coal	
	Anthracite		Bituminous and subbituminous		Lignite		Total			
	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946
Production	-----	-----	2/14,291	16,288	1,570	1,524	15,861	17,812	3,501	3,313
Imports	4,464	4,639	25,841	22,000	(3)	(3)	30,305	26,639	564	909
Exports	-----	-----	706	854	8	9	714	863	107	47
Available for consumption	4,464	4,639	39,426	37,434	1,562	1,515	45,452	43,588	3,958	4,175

1/ Monthly Coal and Coke Statistics for Canada, December 1947. Production data revised through April 1947.
2/ Decrease in production due to strike in Nova Scotia and New Brunswick, February-June 1947.
3/ Less than 1,000 tons.

TABLE 36. - Canadian coal production, 1946-47, by Provinces, and by kinds, in net tons 1/

	Bituminous		Subbituminous		Lignite		Total	
	1947 2/	1946	1947	1946	1947	1946	1947	1946
Alberta	4,834,632	5,389,418	3,232,435	3,436,893	--------	--------	8,067,067	8,826,311
British Columbia	1,761,436	1,638,424	--------	--------	--------	--------	1,761,436	1,638,424
New Brunswick	344,409	370,655	--------	--------	--------	--------	344,409	370,655
Nova Scotia	4,117,839	5,452,868	--------	--------	--------	--------	4,117,839	5,452,868
Saskatchewan	--------	--------	--------	--------	1,569,727	1,523,489	1,569,727	1,523,489
	11,058,316	12,851,365	3,232,435	3,436,893	1,569,727	1,523,489	15,860,478	17,811,747

1/ Monthly Coal and Coke Statistics for Canada, December 1947. Figures revised through April 1947.
2/ Decrease in production due to strike in Nova Scotia and New Brunswick, February-June.

TABLE 37. - World production of anthracite, 1943-47, in metric tons 1/

(Compiled by P. Roberts)

Country 1/	1943	1944	1945	1946	1947
China 2/	(3)	(3)	1,451,000	757,114	750,000
Eire	123,387	130,198	123,468	122,886	(3)
France	8,205,000	4,964,000	(3)	(3)	(3)
Indochina, French	954,500	499,400	217,700	261,696	247,777
Italy	122,075	(3)	53,446	104,989	115,731
Korea (Chosen)	4,157,101	4,530,262	673,796	4/ 1,071,800	4/ 1,815,200
Morocco, French	102,290	134,400	178,600	220,850	268,500
New Zealand	(3)	(3)	2,571	2,308	(3)
Peru	22,716	14,545	36,848	82,089	4/ 80,000
Portugal	368,321	389,638	436,117	379,526	377,000
Rumania	21,476	12,000	17,000	15,994	23,779
Spain	1,151,762	1,516,035	1,529,532	1,457,529	1,411,355
Switzerland	104,150	51,232	101,993	74,544	15,066
United Kingdom	4,196,671	3,652,881	3,213,405	3,582,084	(3)
United States (Pennsylvania)	55,014,679	57,788,602	49,834,944	54,890,625	51,881,632
Total (estimate)	116,414,000	112,535,000	104,010,000	118,152,000	120,279,000

1/ In addition to countries listed, Belgium, Bulgaria, Germany, Japan, and U.S.S.R. produce anthracite, but data of output are not available. Estimates by author of chapter included in total.
2/ Excludes Kwantung Peninsula.
3/ Data not available; estimate by author of chapter included in total.
4/ Estimate.

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UNITED STATES DEPARTMENT OF THE INTERIOR
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MINERAL MARKET REPORT
MMS NO. 1654

FELDSPAR IN 1947

The production of crude feldspar in the United States in 1947 remained at a high level, although less than in 1946, the peak year for crude spar, according to reports by producers to the Bureau of Mines, United States Department of the Interior The decline probably was due largely to the reduced output of glass, especially containers, in the last part of the year. Sales of ground feldspar in 1947, however, again were the highest on record. Output of ground "aplite" rose 25 percent to a new high. Imports of Canadian crude feldspar increased 2 percent to the highest level since 1930. Receipts of crude nepheline syenite (all from Canada) were the largest yet reported.

DOMESTIC PRODUCTION

Crude feldspar.- Output of crude feldspar in 1947 decreased 10 percent in quantity and 7 percent in value compared with 1946, although it was much higher than any other previous year.

Crude feldspar sold or used by producers in the United States, 1945-47
(Value at mine or nearest shipping point)

State	1945		1946		1947	
	Long tons	Value	Long tons	Value	Long tons	Value
Colorado.........	26,279	$ 105,021	37,312	$145,975	43,676	$218,593
Connecticut......	11,705	74,778	16,555	98,407	15,408	100,152
Maine............	10,974	62,287	18,922	110,237	16,898	97,565
North Carolina...	148,493	863,740	230,367	1,200,638	220,997	1,081,514
South Dakota.....	68,374	314,787	74,540	299,852	58,959	284,378
Virginia.........	29,089	178,664	32,960	204,588	41,820	261,741
Wyoming..........	17,021	62,614	20,345	83,496	18,801	90,258
Undistributed 1/.	61,119	359,638	77,379	450,906	43,351	276,739
	373,054	2,021,529	508,380	2,594,099	459,910	2,410,940

1/ Includes Arizona, New Hampshire, New York, and Texas; Pennsylvania (1945), California (1945 and 1947), Georgia (1946-47), and Maryland (1947).

Production of crude spar in North Carolina in 1947 was only 4 percent less than in the record year, 1946, and continued at an active pace. Output in Virginia and Colorado were 27 and 17 percent greater, respectively, than in 1946. South Dakota,

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Prepared by Robert W. Metcalf, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Wyoming, and the New England States, - Connecticut, Maine, and New Hampshire, - registered small to substantial decreases in output.

Ground feldspar.- Sales of ground feldspar by merchant mills in 1947 were 3 percent in quantity and 10 percent in value higher than in 1946, and established a new record. Sales of feldspar of Canadian origin ground in merchant mills in the United States in 1947 rose 21 percent in quantity compared with 1946, and amounted to 4 percent of total merchant sales. Production from North Carolina and Tennessee mills supplied 45 percent of the total sales of feldspar ground in the United States in 1947, compared with 44 percent in 1946.

Ground feldspar sold by merchant mills 1/ in the United States, 1945-47

State	1945			1946			1947		
	Active mills	Short tons	Value	Active mills	Short tons	Value	Active mills	Short tons	Value
Calif......	3	809	$11,911	2	294	$5,276	......	......	......
Colo........	3	41,433	307,619	2	55,251	448,011	2	66,940	$616,973
Conn........	2)	19,139	355,578	2)	22,464	405,828	2)	24,537	426,952
New Jer.....	2)			2)			1)		
Maine......	2	9,746	156,618	3	14,822	235,636	3	17,414	280,154
No. Car....	4)	142,208	1,665,634	4)	207,527	2,194,552	4)	217,109	2,360,352
Tenn........	2)			2)			2)		
Undistributed2/....	12	168,393	1,749,601	11	169,841	2,056,804	12	156,700	2,176,710
	30	381,728	4,246,961	28	470,199	5,346,107	26	482,700	5,861,141

1/ Excludes potters and others who grind for consumption in their own plants.

2/ Includes (number of active mills in parentheses) Arizona (1), Illinois (1), New Hampshire (3 in 1945, 2 in 1946-47), New York (3), South Dakota (2 in 1945-46, 3 in 1947), and Virginia (2).

North Carolina in 1947 was by far the largest producer of ground feldspar, followed by Colorado, South Dakota, Tennessee, and Virginia.

CONSUMPTION AND USES

Crude feldspar.- Most crude feldspar is sold to merchant mills, which grind or otherwise process the spar and sell it to the ultimate consumers. However, a few pottery and enamel manufacturers and some makers of scouring soap and sweeping compounds mine or purchase crude feldspar and prepare it for use in their products in their own mills.

Ground feldspar.- Ceramic industries in 1947 consumed 98 percent of the ground feldspar sold by merchant mills, compared with 99 percent in 1946. Sales of ground spar to glass manufacturers in 1947 dropped 8 percent from the record figure of 1946, but were 7 percent higher than in any previous year. Sales to potteries jumped 19 percent in 1947 compared with 1946, reaching record heights. Ground feldspar consumed in enamel manufacture in 1947 also was substantially higher than in 1946.

Ground feldspar sold by merchant mills in the United States, 1945-47

Use	1945		1946		1947	
	short tons	Percent of total	Short tons	Percent of total	Short tons	Percent of total
Ceramic:						
Glass...............	249,927	65.5	289,559	61.6	266,720	55.3
Pottery.............	111,695	29.3	154,340	32.8	183,329	38.1
Enamel..............	13,755	3.6	22,500	4.8	24,159	5.0
Other ceramic uses.	1,747	.4	144	------	60	------
Soaps and Abrasives....	4,245	1.1	3,081	.7	7,871	1.6
Other uses..............	359	.1	575	.1	61	------
	381,728	100.0	470,199	100.0	482,700	100.0

Reports from merchant grinders in 1947 indicated that more ground feldspar was shipped to Pennsylvania than to any other State, closely followed by Illinois and Ohio. West Virginia, Indiana, and New Jersey were the next largest States of destination of shipments. New and enlarged glass and pottery plants in many parts of the country presage a continued active demand, especially in southern and southwestern States.

NEPHELINE SYENITE

The nepheline syenite used in ceramics in the United States has originated almost wholly from the Blue Mountain deposits of American Nepheline, Ltd. near Lakefield, Peterborough County, Ontario, Canada. A new mill recently has been placed in operation at Lakefield.

Efforts to develop United States deposits of nepheline-bearing rocks have been made in New Jersey and Arkansas. The former were not considered suitable for ceramic use. Detailed tests of the Arkansas material are continuing and have given some hope of their possible application in ceramics.

APLITE

Virtually the entire output of "aplite" is used in the making of glass products, particularly glass containers. Sales of aplite in 1947 increased 25 percent compared with 1946 and established a new record. Aplite is mined in Amherst and Nelson Counties, Virginia, by two firms, Dominion Minerals, Inc., Piney River, Virginia, and Carolina Mineral Co., Inc., Kona, North Carolina. Both firms operate mills near Piney River, Virginia.

FOREIGN TRADE

Feldspar.- Imports for consumption of crude feldspar into the United States in 1947 increased slightly to 16,685 long tons and represent the highest year since 1930. All the crude spar imported in 1947, except 5 tons from Norway, originated in Canada.

Nepheline syenite.-Crude nepheline syenite imported for consumption in the United States in 1947 were again the largest yet recorded, 54,382 short tons valued at $194,283.

Small amounts of feldspar were reported by the merchant grinders as exports in 1946 (2,822 short tons) and 1947 (1,750 short tons). Principal destinations were listed as Canada, Mexico, Puerto Rico, and England.

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MINERAL MARKET REPORT
MMS NO. 1655

SAND AND GRAVEL IN 1947

The production of sand and gravel in 1947 as reported to the Bureau of Mines, Department of the Interior, totaled 287,659,000 short tons valued at $216,869,000. These figures represent an increase of 13 percent in quantity produced and 27 percent in value over the 254,131,000 tons valued at $171,386,000 reported in 1946. Approximately 74 percent of the total production was supplied by commercial plants and 26 percent by Federal, State, county, and municipal governments. The largest increase in sand was for fire or furnace use, and in gravel for railroad ballast.

California, in 1947 as in 1946, was the largest producer and Michigan, Wisconsin, Illinois, Ohio, New York, Minnesota and Texas followed in that order. These 8 States, each with an output of more than 13,000,000 short tons, accounted for approximately 48 percent of the total production.

COMMERCIAL PRODUCTION

Sales by commercial producers in 1947 amounted to 212,562,417 short tons, representing an increase of about 11 percent over the 192,092,566 tons produced in 1946.

As indicated in the accompanying table, sales in 1947 of all kinds of sands by commercial producers, with the exception of engine and other (miscellaneous), increased over those reported for 1946. Sales of gravel by this class of producers showed increases in every type of use. The combined total of sand and gravel used on Government-and-contractor operations also showed an increase over the preceding year.

The total output of the industrial sands in 1947 continued strong and the outlook for the future appears good.

Glass sand. Sales of glass sand totaled 5,321,247 short tons with an average value of $2.14 per ton, an increase of 10 percent in production over the 1946 figure. Leading producing States in the order named were Illinois, West Virginia, Pennsylvania, Missouri, and New Jersey.

Molding sand. The output of molding sand was 8,308,434 short tons, representing an increase of 19 percent over the 1946 figure. The average value was $1.44 per ton. Michigan, New Jersey, Illinois, Ohio, and New York were the leading producing States.

Prepared by D. G. Runner and G. E. Tucker, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Grinding and polishing sand (including blast sand). Sales of this sand increased approximately 21 percent reaching 1,099,253 short tons averaging $1.64 per ton. The largest output by States was from Pennsylvania, Michigan, Missouri, Illinois, and New Jersey.

Fire or furnace sand. Production increased approximately 50 percent with sales totaling 373,917 or $1.14 per ton. States leading in production were Indiana, Ohio, Nebraska, Illinois, and Pennsylvania.

Engine sand. Production of engine sand decreased about 4 percent and totaled 2,683,333 short tons averaging 78 cents per ton. West Virginia, Pennsylvania, Indiana, Illinois, and Virginia were the chief producing States.

Filter sand. There was a 34 percent increase in the production of filter sand. Production amounted to 211,646 short tons with an average value of $1.73 per ton. Leading producing States were New Jersey, New York, Michigan, Ohio, and Iowa.

Preparation. Washed, screened, or otherwise prepared sand and gravel comprised 91 percent (192,619,538 short tons) of the total commercial production. The average value was 89 cents per ton compared to 51 cents for unprepared material.

Transportation. Ninety-five percent (202,325,533 tons) of the total commercial production was covered by figures representing methods of transportation; of that output 53 percent was moved by truck, 38 percent by rail, and 9 percent by waterway. When Government-and-contractor output, which is commonly moved by truck, is added the percentages become 66, 27, and 7 percent, respectively.

GOVERNMENT-AND-CONTRACTOR OPERATIONS

The output of sand and gravel from noncommercial or Government-and-contractor operations in 1947 accounted for 26 percent of the total tonnage compared with 24 percent in 1946. The value of this tonnage in 1947 represents 16 percent of the total value for sand and gravel produced by the industry. States reported 49 percent of the total in 1947, counties 36, municipalities 2, and other agencies 13. Twenty percent of the total was classified as prepared with an average value of 89 cents per ton. Unprepared material was valued at 36 cents per ton compared with 30 cents in 1946.

Sand and gravel sold or used by producers in the United States, 1946-47, by commercial and Government-and-contractor operations and by uses

	1946			1947		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
COMMERCIAL OPERATIONS						
Sand:						
Glass	4,848,602	$9,541,405	$1.97	5,321,247	$11,395,245	2.14
Molding	6,973,906	9,531,263	1.37	8,308,434	11,944,228	1.44
Building	48,237,949	31,653,529	.66	52,475,831	39,982,460	.76
Paving	24,360,044	16,373,892	.67	28,386,749	20,988,676	.74
Grinding and polishing [1]	906,889	1,379,954	1.52	1,099,253	1,801,989	1.64
Fire or furnace	248,866	333,643	1.34	373,917	426,956	1.14
Engine	2,797,132	1,924,779	.69	2,683,333	2,092,656	.78
Filter	157,511	284,991	1.81	211,646	366,905	1.73
Railroad ballast [2]	714,884	262,089	.37	852,076	382,278	.45
Other [3]	1,548,620	1,747,921	1.13	1,406,677	1,739,367	1.24
Total commercial sand	90,794,403	73,033,466	.80	101,119,163	91,120,760	.90
Gravel:						
Building	40,424,515	32,958,822	.82	43,494,575	40,005,616	.92
Paving	46,894,010	34,325,134	.73	51,863,727	42,974,456	.83
Railroad ballast [4]	12,009,960	6,341,133	.53	13,935,934	6,790,456	.49
Other [5]	1,969,678	1,438,147	.73	2,149,018	1,480,350	.69
Total commercial gravel	101,298,163	75,063,236	.74	111,443,254	91,250,878	.82
Total commercial sand and gravel	192,092,566	148,096,702	.77	212,562,417	182,371,638	.86
GOVERNMENT-AND-CONTRACTOR OPERATIONS [6]						
Sand:						
Building	894,000	313,000	.35	1,551,000	717,000	.46
Paving	4,752,000	1,629,000	.34	6,049,000	2,316,000	.38
Total Government-and-contractor sand	5,646,000	1,942,000	.34	7,600,000	3,033,000	.40
Gravel:						
Building	2,752,000	1,416,000	.51	2,208,000	1,541,000	.70
Paving	53,641,000	19,932,000	.37	65,289,000	29,923,000	.46
Total Government-and-contractor gravel	56,393,000	21,348,000	.38	67,497,000	31,464,000	.47
Total Government-and-contractor sand and gravel	62,039,000	23,290,000	.38	75,097,000	34,497,000	.46
COMMERCIAL AND GOVERNMENT-AND-CONTRACTOR OPERATIONS						
Sand	96,440,000	74,975,000	.78	108,719,000	94,154,000	.87
Gravel	157,691,000	96,411,000	.61	178,940,000	122,715,000	.69
Grand total	254,131,000	171,386,000	.67	287,659,000	216,869,000	.75

See footnotes on following page.

1/ Includes blast sand as follows--1946: 292,899 tons valued at $736,819; 1947: 308,128 tons, $958,023.

2/ Includes ballast sand used by railroads for fills and similar purposes as follows--1946: 83,422 tons valued at $10,562; 1947: 5,760 tons, $450.

3/ Includes some sand used by railroads for fills and similar purposes as follows--1946: 164,061 tons valued at $30,658; 1947: 159,983 tons, $31,886.

4/ Includes ballast gravel produced by railroads for their own use as follows--1946: 4,077,115 tons valued at $1,640,726; 1947: 5,424,388 tons, $1,813,184.

5/ Includes some gravel used by railroads for fills and similar purposes as follows--1946: 637,462 tons valued at $107,938; 1947: 1,058,333 tons, $298,249.

6/ Approximate figures for States, counties, municipalities, and other Government agencies directly or under lease.

Industrial sand sold or used by producers in the United States, 1943-47, by uses

	Glass sand		Molding sand		Grinding and polishing sand 1/	
	Short tons	Value	Short tons	Value	Short tons	Value
1943	3,971,931	$7,376,566	8,924,654	$12,093,670	837,662	$1,428,463
1944	4,443,031	8,227,502	8,983,075	11,752,360	897,983	1,563,511
1945	4,681,920	8,374,213	7,190,856	9,724,750	642,511	1,029,501
1946	4,848,602	9,541,405	6,973,906	9,531,263	906,889	1,379,954
1947	5,321,247	11,395,245	8,308,434	11,944,228	1,099,253	1,801,989

	Fire or furnace sand		Engine sand		Filter sand		Total	
	Short tons	Value	Short tons	Value	Short tons	Value	Short tons	Value
1943	394,753	$539,273	2,862,025	$1,983,364	158,555	$258,547	17,149,580	$23,679,883
1944	362,978	479,711	2,852,648	1,993,119	146,008	263,922	17,685,723	24,280,125
1945	308,997	387,872	2,771,896	1,924,725	109,845	231,026	15,706,025	21,672,092
1946	248,866	333,643	2,797,132	1,924,779	157,511	284,991	15,932,906	22,996,035
1947	373,917	426,956	2,683,333	2,092,656	211,646	366,905	17,997,830	28,027,979

1/ Includes blast sand as follows--1943: 450,997 tons valued at $1,138,003; 1944: 482,293 tons, $1,228,744; 1945: 318,390 tons, $766,013; 1946: 292,899 tons, $736,819; 1947: 308,128 tons, $958,023.

Sand and gravel sold or used by commercial and Government-and-contractor producers in the United States in 1947, by States

State	Short tons	Value	State	Short tons	Value
Alabama	3,400,103	2,271,534	Nevada	963,253	1,460,251
Alaska	(1/)	(1/)	New Hampshire	1/1,737,084	1/198,748
Arizona	1,607,758	1,368,080	New Jersey	1/5,532,011	1/6,335,343
Arkansas	1/2,690,163	1/2,267,203	New Mexico	540,794	492,583
California	31,386,826	25,338,967	New York	13,820,196	10,906,224
Colorado	3,524,653	2,323,736	North Carolina	4,171,553	2,956,800
Connecticut	2,329,198	1,384,675	North Dakota	2,383,021	920,111
Delaware	235,464	195,002	Ohio	15,368,990	14,195,288
Florida	2,067,401	1,880,866	Oklahoma	1,670,205	1,125,322
Georgia	927,330	575,115	Oregon	6,020,440	5,541,213
Idaho	3,209,766	2,067,891	Pennsylvania	11,543,971	13,006,644
Illinois	16,292,527	13,155,971	Puerto Rico	(1/)	(1/)
Indiana	9,231,649	6,687,082	Rhode Island	1/44,363	1/25,261
Iowa	6,473,087	2,795,887	South Carolina	601,313	278,021
Kansas	4,351,920	2,330,435	South Dakota	3,122,409	1,672,253
Kentucky	2,454,492	1,997,768	Tennessee	3,891,251	3,805,669
Louisiana	1/4,055,834	1/4,277,499	Texas	13,198,728	10,540,980
Maine	3,777,147	1,241,377	Utah	2,945,543	1,612,354
Maryland	4,624,094	4,792,554	Vermont	780,192	561,862
Massachusetts	4,942,920	3,511,855	Virginia	4,570,620	3,052,669
Michigan	16,845,431	10,758,243	Washington	6,380,571	5,700,960
Minnesota	13,510,136	4,194,268	West Virginia	3,796,253	5,782,988
Mississippi	1/2,036,136	1/1,393,218	Wisconsin	16,335,236	9,938,778
Missouri	1/4,597,495	1/4,193,474	Wyoming	2,268,381	1,490,702
Montana	4,203,797	3,129,921	Undistributed 1/	11,385,000	8,199,000
Nebraska	3,792,622	2,135,625			
				287,659,000	216,869,000

1/ Output of commercial producers in New Hampshire and Rhode Island and of Government-and-contractor operations in Alaska, Arkansas, Louisiana, Mississippi, Missouri, New Jersey, and Puerto Rico comprises "Undistributed."

Comparison of number and production of commercial sand and gravel plants in the United States, 1946-47, by size groups 1/

Size groups, in short tons	1946				1947			
	Plants 2/		Production		Plants 2/		Production	
	Number	Percent of total	Short tons	Percent of total	Number	Percent of total	Short tons	Percent of total
Less than 25,000	838	39.5	7,601,000	4.0	869	38.9	8,366,000	4.1
25,000 to less than 50,000	365	17.2	13,254,000	7.1	388	17.4	14,098,000	6.8
50,000 to less than 100,000	398	18.8	28,196,000	15.1	404	18.1	28,729,000	14.0
100,000 to less than 200,000	277	13.1	39,424,000	21.1	298	13.3	41,655,000	20.2
200,000 to less than 300,000	115	5.4	27,675,000	14.8	136	6.1	33,165,000	16.1
300,000 to less than 400,000	52	2.4	18,019,000	9.6	56	2.5	19,395,000	9.4
400,000 to less than 500,000	28	1.3	12,451,000	6.6	27	1.2	12,065,000	5.9
500,000 to less than 600,000	16	.8	8,620,000	4.6	25	1.1	13,614,000	6.6
600,000 to less than 700,000	9	.4	5,927,000	3.2	3	.1	1,934,000	.9
700,000 to less than 800,000	2	.1	1,468,000	.8	7	.3	5,139,000	2.5
800,000 to less than 900,000	7	.3	6,119,000	3.3	3	.1	2,517,000	1.2
900,000 to less than 1,000,000	2	.1	1,907,000	1.0	5	.2	4,690,000	2.3
1,000,000 and over	12	.6	16,469,000	8.8	15	.7	20,547,000	10.0
	2,121	100.0	187,130,000	100.0	2,236	100.0	205,914,000	100.0

1/ Plants operated by or for States, counties, municipalities and other Government agencies are not included; also not included are approximately 133 railroad plants with an output of 4,962,000 tons of sand and gravel in 1946 and 163 plants with an output of 6,648,000 tons in 1947.

2/ Includes a few companies operating more than 1 plant but not submitting separate returns for individual plants.

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FOR IMMEDIATE RELEASE MINERAL MARKET REPORT No. MMS 1656

RECORD CONSUMPTION OF INDUSTRIAL EXPLOSIVES IN 1947.

Consumption of industrial explosives in the United States reached a new high record of 651,390,937 pounds in 1947 according to the Bureau of Mines, United States Department of the Interior. This record total, which reflects the high levels of activity in the consuming industries, was 12 percent greater than the former peak annual consumption in 1917.

Sales of permissible explosives and of high explosives other than permissibles each advanced to record totals in 1947 which were respectively 22 and 19 percent greater than the former records in 1946. The gain in use of permissibles resulted from the high level of activity in bituminous-coal mining. Consumption of high explosives other than permissibles in 1947 gained sharply over 1946 in all uses; the gain of largest proportion was in railway and other construction uses for which consumption increased 30 percent over 1946. Sales of black blasting powder in 1947 were virtually unchanged from 1946. Although consumption of granular black blasting powder fell 27 percent below 1946 this decline was compensated by a 14 percent increase in sales of pellet black blasting powder in 1947.

Consumption of liquid oxygen explosives totaled 16,561,539 pounds of which all was used in bituminous-coal strip mines. These data which are included for the first time in the survey of explosives consumption are expressed as the weight of the fully saturated cartridges at the time of removal from the soaking box. Although liquid oxygen explosives have been used in European countries since approximately 1897, they were introduced experimentally into the United States in 1917 and first used commercially in 1922.

Sizeable quantities of surplus explosives from the war were sold during the fiscal year ended June 30, 1948 by the War Assets Administration. From the meager data available it appears that about 15,350,000 pounds of block TNT and 264,000 pounds of flake and crystal TNT were sold during fiscal 1948. It is said that this was sold principally to explosives manufacturers who, after further processing, resold the explosives. These resales are included in the data of this report in the type "high explosives other than permissibles." The War Assets Administration had approximately 7 1/2 million pounds of war explosives on hand on July 1, 1948 but it was expected that a substantial part of this poundage would be returned to the armed forces of the nation.

The coal mining industry in 1947 as in the preceding several years was the largest consumer of each type of explosive. It alone consumed 46 percent of all

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Prepared by R. W. Grunberg under the supervision of Forrest T. Moyer, Chief, Accident Analysis Branch, Economics and Statistics Division.

Salient Statistics of Industrial Explosives in the United States, 1935-39 Average, 1946 and 1947.

Kind of explosive		1935-39 average	1946	1947
Apparent consumption of —				
Black blasting powder:				
Granular	25-lb. kegs	1,250,831	541,544	393,465
	pounds	31,270,775	13,538,600	9,836,625
Pellet	25-lb. cases	1,363,237	931,398	1,065,099
	pounds	34,080,925	23,284,950	26,627,475
Total	25-lb. units	2,614,068	1,472,942	1,458,564
	pounds	65,351,700	36,823,550	36,464,100
High explosives:				
Permissible	pounds	45,683,634	100,258,217	122,348,571
Other than permissibles..........	pounds	253,624,298	399,232,885	476,016,727
Total	pounds	299,307,932	499,491,102	598,365,298
Liquid oxygen explosive	pounds	1/	1/	16,561,539
Grand Total..	pounds	364,659,632	536,314,652	651,390,937

1/ Data not collected prior to 1947.

industrial explosives. Bituminous-coal mines required 36 percent and anthracite mines 10 percent of the total 1947 sales. Of the 302,617,576 pounds used in 1947 to mine coal, 43 percent were high explosives other than permissibles, 40 percent were permissibles, 11 percent were black blasting powders and 6 percent were liquid oxygen explosives. Owing to the increasing proportion of strip coal produced in 1947 and 1946 and to the probably heavier overburden to be moved, the poundage of high explosives other than permissibles used in coal mining was greater than the quantity of permissibles used to mine coal. This seemingly unusual consumption pattern for coal mining had not been observed since 1915.

The 24-percent gain in demand for explosives by the metal-mining industries was a strong reversal of the downtrend in consumption of explosives by metal mines that had lasted since the latter part of the war in 1944 and 1945 and through 1946. The gain in 1947 reflected a higher level of activity in the mining of certain metal ores. Sharp gains in consumption were noted in States producing principally iron and copper ores--Minnesota, Michigan, Alabama, New York, Arizona, Utah, and New Mexico. Consumption of explosives for metal mining declined in California and South Dakota which are known as gold producing States and in Kansas, Missouri, and Oklahoma which have large production of lead-zinc ores. The wartime subsidies by the government to high-cost lead-zinc mines were stopped in 1947. Virtually all explosives used in metal mines are of the high explosive other than permissible type.

Use of explosives in the quarrying and nonmetal mining industries continued to increase and consumption in 1947 was 7 percent higher than in 1946. Although black powders represent only a small part of the total consumption, it is notable that use of black powders declined moderately in these industries in 1947.

The 30-percent increase in explosive consumption for railway and construction work indicates the higher activity in this work in 1947. Use of black powders fell sharply and this type of explosive was less than one-half percent of the total poundage consumed for railway and construction work. Permissible explosives likewise represent only a relatively insignificant part of the total consumption in this work.

The use of explosives for "all other purposes" was changed only slightly from the consumption in 1946. The total poundage sold for this use was 3 percent of the total consumption in 1947.

The principle States of consumption of explosives are the leading coal producing States. Pennsylvania with its large coal and quarrying industries is by far the ranking State in consumption of explosives. West Virginia, Kentucky and Illinois are the next ranking States in order of use of explosives.

Industrial Explosives Sold for Consumption in the United States in 1946 - 47, by Uses.

Kind of Explosive	Coal mining		Metal mining		Quarrying and non-metal mining		Railway and other construction work		All other purposes	
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
Apparent Consumption of —										
Black blasting powder:										
Granular ..25-lb. kegs	391,448	307,413	949	890	54,528	47,905	75,895	18,064	18,724	19,193
pounds	9,786,200	7,685,325	23,725	22,250	1,363,200	1,197,625	1,897,375	451,600	468,100	479,825
Pellet ....25-lb. cases	911,890	1,048,783	880	100	16,410	14,237	1,322	1,476	896	503
pounds	22,797,250	26,219,575	22,000	2,500	410,250	355,925	33,050	36,900	22,400	12,575
Total ...25-lb. units	1,303,338	1,356,196	1,829	990	70,938	62,142	77,217	19,540	19,620	19,696
pounds	32,583,450	33,904,900	45,725	24,750	1,773,450	1,553,550	1,930,425	488,500	490,500	492,400
High explosives:										
Permissible .....pounds	99,455,442	121,431,908	20,325	39,300	688,650	702,575	55,650	125,763	38,150	49,025
Other than permissibles.......pounds	108,076,347	130,719,229	82,173,012	102,248,863	101,457,708	109,118,349	86,373,392	112,642,227	21,152,426	21,288,059
Total ....pounds	207,531,789	252,151,137	82,193,337	102,288,163	102,146,358	109,820,924	86,429,042	112,767,990	21,190,576	21,337,084
Liquid oxygen explosives 1/......pounds	-	16,561,539	-	-	-	-	-	-	-	-
Grand Total..pounds	240,115,239	302,617,576	82,239,062	102,312,913	103,919,808	111,374,474	88,359,467	113,256,490	21,681,076	21,829,484

1/ Data not collected prior to 1947.

Industrial Explosives Sold for Consumption in the United States in 1947, by States of Consumption.

State	Black Blasting Powder				High Explosives		Liquid Oxygen Explosi
	Granular (25-lb. kegs)	Pellet (25-lb. cases)	Total (25-lb. units)	Total (Pounds)	Other than permissibles (Pounds)	Permissible (Pounds)	
Alabama	5,463	48,598	54,061	1,351,525	12,823,088	7,316,950	-
Alaska	-	-	-	-	1,447,082	270,000	-
Arizona	1,210	100	1,310	32,750	17,355,125	10,900	-
Arkansas	9,071	6,080	15,151	378,775	4,890,094	197,850	-
California	12,446	-	12,446	311,150	15,930,274	50	-
Colorado	959	6,004	6,963	174,075	7,883,440	866,905	-
Connecticut	151	-	151	3,775	954,848	-	-
Delaware	-	-	-	-	85,400	-	-
Florida	26,157	2	26,159	653,975	1,969,850	500	-
Georgia	1,755	1,064	2,819	70,475	4,081,105	-	-
Idaho	127	-	127	3,175	4,798,025	-	-
Illinois	33,200	245,945	279,145	6,978,625	15,383,266	8,432,978	7,938,175
Indiana	12,236	60,074	72,310	1,807,750	16,439,228	1,949,175	8,623,364
Iowa	2,461	25,852	28,313	707,825	7,436,445	9,350	-
Kansas	3,346	5,654	9,000	225,000	8,232,690	82,150	-
Kentucky	79,712	271,163	350,875	8,771,875	17,335,840	15,395,921	-
Louisiana	2	-	2	50	7,770,125	69,100	-
Maine	82	22	104	2,600	880,650	-	-
Maryland & D. C.	1,186	6,452	7,638	190,950	1,666,522	386,900	-
Massachusetts	143	14	157	3,925	1,083,712	-	-
Michigan	17	324	341	8,525	14,871,016	7,550	-
Minnesota	391	-	391	9,775	17,578,742	-	-
Mississippi	2	-	2	50	3,929,067	-	-
Missouri	45,155	13,811	58,966	1,474,150	14,488,244	32,100	-
Montana	712	3,600	4,312	107,800	7,374,156	251,100	-
Nebraska	157	-	157	3,925	402,790	-	-
Nevada	240	-	240	6,000	5,851,323	-	-
New Hampshire	56	-	56	1,400	272,556	-	-
New Jersey	3	-	3	75	3,191,015	150	-
New Mexico	15	1,120	1,135	28,375	13,801,175	328,450	-
New York	713	80	793	19,825	14,449,272	300	-
North Carolina	7,725	800	8,525	213,125	5,113,585	-	-
North Dakota	3,162	12,616	15,778	394,450	355,265	84,600	-
Ohio	18,324	45,477	63,801	1,595,025	21,508,189	2,492,430	2/
Oklahoma	8,215	16,422	24,637	615,925	11,752,066	113,700	-
Oregon	491	-	491	12,275	9,090,485	2,000	-
Pennsylvania	26,845	184,811	211,656	5,291,400	81,626,798	40,847,216	-
Rhode Island	20	-	20	500	46,750	-	-
South Carolina	206	-	206	5,150	1,325,845	-	-
South Dakota	-	-	-	-	1,737,225	-	-
Tennessee	25,049	77,146	102,195	2,554,875	9,780,145	978,516	-
Texas	1,313	-	1,313	32,825	21,425,052	410,000	-
Utah	-	-	-	-	10,059,019	2,526,225	-
Vermont	3,420	60	3,480	87,000	926,200	-	-
Virginia	43,691	22,904	66,595	1,664,875	9,067,765	4,866,920	-
Washington	702	-	702	17,550	13,874,557	511,400	-
West Virginia	15,717	7,924	23,641	591,025	23,495,448	32,632,785	-
Wisconsin	1,416	-	1,416	35,400	6,243,394	-	-
Wyoming	1	980	981	24,525	3,932,774	1,274,400	-
Total, 1947.	393,465	1,065,099	1,458,564	36,464,100	476,016,727	122,348,571	16,561,539

1/ Includes LOX consumed in Ohio.
2/ Included with Indiana.

Industrial Explosives Sold in 1947, by Type, Use, and State of Consumption.

GRANULAR BLACK BLASTING POWDER (25-lb. kegs).

State of consumption	Use					
	Coal mining	Metal mining	Quarrying and non-metal mining	Railway and other construction work	All other purposes	Total
Alabama........	959	-	2,231	2,270	3	5,463
Arizona........	-	330	-	880	-	1,210
Arkansas.......	8,895	-	142	10	24	9,071
California.....	-	261	226	10,173	1,786	12,446
Colorado.......	398	-	173	386	2	959
Connecticut....	-	-	71	-	80	151
Florida........	-	-	20,001	-	6,156	26,157
Georgia	84	22	1,395	232	22	1,755
Idaho..........	-	79	-	40	8	127
Illinois.......	32,190	-	851	-	159	33,200
Indiana........	11,928	-	262	-	46	12,236
Iowa	2,230	-	100	10	121	2,461
Kansas	1,703	1	1,241	312	89	3,346
Kentucky	79,652	-	55	4	1	79,712
Louisiana	-	-	-	1	1	2
Maine	-	-	56	2	24	82
Maryland and D. C.	840	-	342	-	4	1,186
Massachusetts .	-	-	82	39	22	143
Michigan	6	-	-	-	11	17
Minnesota	-	-	122	10	259	391
Mississippi ...	-	-	-	1	1	2
Missouri	42,015	-	2,282	27	831	45,155
Montana	704	-	-	8	-	712
Nebraska.......	-	-	12	64	81	157
Nevada	-	160	-	80	-	240
New Hampshire .	-	-	22	2	32	56
New Jersey	-	-	3	-	-	3
New Mexico	-	-	8	-	7	15
New York	-	12	496	28	177	713
North Carolina.	-	-	3,898	119	3,708	7,725
North Dakota ..	3,153	-	-	2	7	3,162
Ohio	16,255	-	1,851	69	149	18,324
Oklahoma	7,987	-	225	3	-	8,215
Oregon	-	-	-	481	10	491
Pennsylvania:						
Anthracite ..	458	-	4,374	31	1,155	26,845
Bituminous ..	20,827					
Rhode Island ..	-	-	19	-	1	20
South Carolina.	-	-	180	12	14	206
Tennessee	21,438	-	1,891	1,668	52	25,049
Texas	-	-	611	415	287	1,313
Vermont	-	-	3,420	-	-	3,420
Virginia	40,112	-	205	334	3,040	43,691
Washington	214	-	-	298	190	702
West Virginia .	15,365	-	331	10	11	15,717
Wisconsin	-	25	727	43	621	1,416
Wyoming	-	-	-	-	1	1
Total (kegs)	307,413	890	47,905	18,064	19,193	393,465
(pounds)	7,685,325	22,250	1,197,625	451,600	479,825	9,836,625

Industrial Explosives Sold in 1947, by Type, Use, and State of Consumption.

PELLET BLACK BLASTING POWDER (25-lb. cases)

State of consumption	Use					
	Coal mining	Metal mining	Quarrying and non-metal mining	Railway and other construction work	All other purposes	Total
Alabama........	48,532	-	18	46	2	48,598
Arizona........	100	-	-	-	-	100
Arkansas	5,894	-	-	186	-	6,080
Colorado	6,004	-	-	-	-	6,004
Florida	-	-	2	-	-	2
Georgia	916	-	-	116	32	1,064
Illinois	245,786	-	170	4	15 1/	245,945
Indiana	59,852	-	132	8	82	60,074
Iowa	25,250	-	600	-	2	25,852
Kansas	5,536	100	16	2	-	5,654
Kentucky	263,191	-	7,418	354	200	271,163
Maine	-	-	22	-	-	22
Maryland and D. C.	6,450	-	-	-	2	6,452
Massachusetts..	-	-	14	-	-	14
Michigan	324	-	-	-	-	324
Missouri	12,933	-	444	434	-	13,811
Montana	3,600	-	-	-	-	3,600
New Mexico	1,120	-	-	-	-	1,120
New York	-	-	80	-	-	80
North Carolina.	-	-	800	-	-	800
North Dakota ..	12,616	-	-	-	-	12,616
Ohio	42,290	-	3,023	40	124	45,477
Oklahoma	16,422	-	-	-	-	16,422
Pennsylvania:						
Anthracite ..	110,866	-	814	82	-	184,811
Bituminous ..	73,049					
Tennessee	76,962	-	20	164	-	77,146
Vermont	-	-	60	-	-	60
Virginia	22,454	-	410	40	-	22,904
West Virginia .	7,656	-	194	-	74	7,924
Wyoming	980	-	-	-	-	980
Total(cases)	1,048,783	100	14,237	1,476	503	1,065,099
(pounds)	26,219,575	2,500	355,925	36,900	12,575	26,627,475

1/ Sold by manufacturer but later returned unused to him.

Industrial Explosives Sold in 1947, by Type, Use, and State of Consumption.

LIQUID OXYGEN EXPLOSIVES (Pounds)

State of consumption	Use					
	Coal mining	Metal mining	Quarrying and non-metal mining	Railway and other construction work	All other purposes	Total
Illinois	7,938,175	-	-	-	-	7,938,175
Indiana and Ohio	8,623,364	-	-	-	-	8,623,364
Total	16,561,539	-	-	-	-	16,561,539

Industrial Explosives Sold in 1947, by Type, Use, and State of Consumption.

HIGH EXPLOSIVES OTHER THAN PERMISSIBLES (Pounds)

State of consumption	Use					
	Coal mining	Metal mining	Quarrying and non-metal mining	Railway and other construction work	All other purposes	Total
Alabama	2,741,791	6,038,028	2,114,819	938,225	990,225	12,823,088
Alaska	20,000	73,310	123,800	1,172,222	57,750	1,447,082
Arizona	-	15,835,475	133,750	1,384,700	1,200	17,355,125
Arkansas	1,762,550	1,357,800	960,394	687,400	121,950	4,890,094
California	-	2,577,901	3,864,810	8,871,944	615,619	15,930,274
Colorado	213,888	4,120,635	563,190	2,910,651	75,076	7,883,440
Connecticut ...	-	-	271,143	475,716	207,989	954,848
Delaware	-	-	16,300	1,250	67,850	85,400
Florida	-	-	1,171,350	368,350	430,150	1,969,850
Georgia	6,450	27,650	1,885,755	994,955	1,166,295	4,081,105
Idaho	-	3,205,570	149,750	1,257,305	185,400	4,798,025
Illinois	6,180,934	96,800	8,074,348	727,786	303,398	15,383,266
Indiana	12,608,237	-	3,333,225	228,291	269,475	16,439,228
Iowa	442,945	-	3,829,214	2,452,286	712,000	7,436,445
Kansas	2,017,065	1,909,300	3,291,088	973,212	42,025	8,232,690
Kentucky	7,924,956	13,000	3,758,200	5,426,359	213,325	17,335,840
Louisiana	-	-	438,800	6,442,025	889,300	7,770,125
Maine	-	-	211,000	397,000	272,650	880,650
Maryland and D. C.	133,500	-	957,917	359,900	215,205	1,666,522
Massachusetts .	-	-	438,788	430,674	214,250	1,083,712
Michigan	8,340	9,160,250	5,023,276	256,625	422,525	14,871,016
Minnesota	-	15,199,757	697,690	556,450	1,124,845	17,578,742
Mississippi ...	-	-	55,050	3,131,967	742,050	3,929,067
Missouri	3,156,280	4,315,250	5,431,214	1,451,350	134,150	14,488,244
Montana	1,192,045	3,994,072	1,133,525	856,450	198,064	7,374,156
Nebraska	-	-	185,115	168,625	49,050	402,790
Nevada	-	5,327,198	425,550	80,475	18,100	5,851,323
New Hampshire .	-	-	31,156	125,000	116,400	272,556
New Jersey	-	1,695,000	782,670	615,890	97,455	3,191,015
New Mexico	1,150	4,607,020	4,113,100	5,052,000	27,905	13,801,175
New York	-	4,690,829	6,662,495	2,487,185	608,763	14,449,272
North Carolina.	-	78,550	2,068,025	1,567,950	1,399,060	5,113,585
North Dakota ..	204,100	-	-	99,740	51,425	355,265
Ohio	8,497,171	-	11,209,507	1,524,541	276,970	21,508,189
Oklahoma	1,646,122	2,447,850	1,858,312	5,756,279	43,503	11,752,066
Oregon	-	88,075	272,555	6,765,505	1,964,350	9,090,485
Pennsylvania:						
Anthracite ..	45,416,724	604,450	15,380,179	2,969,840	400,626	81,626,798
Bituminous ..	16,854,979					
Rhode Island ..	-	-	200	28,350	18,200	46,750
South Carolina.	-	-	786,195	217,300	322,350	1,325,845
South Dakota ..	-	1,127,580	384,850	213,370	11,425	1,737,225
Tennessee	564,590	1,398,050	2,913,552	4,681,316	222,637	9,780,145
Texas	-	52,350	3,348,698	17,976,054	47,950	21,425,052
Utah	7,950	8,188,864	733,412	1,012,305	116,488	10,059,019
Vermont	-	435,300	181,950	45,675	263,275	926,200
Virginia	2,247,214	207,900	3,571,661	2,608,670	432,320	9,067,765
Washington	297,600	1,774,020	551,985	8,506,925	2,744,027	13,874,557
West Virginia..	16,146,728	-	2,860,931	3,435,405	1,052,384	23,495,448
Wisconsin	-	1,267,179	2,582,815	1,112,450	1,280,950	6,243,394
Wyoming	425,920	333,850	285,040	2,838,284	49,680	3,932,774
Total	130,719,229	102,248,863	109,118,349	112,642,227	21,288,059	476,016,727

Industrial Explosives Sold in 1947, by Type, Use, and State of Consumption.

PERMISSIBLE EXPLOSIVES (Pounds)

State of consumption	Use					
	Coal mining	Metal mining	Quarrying and non-metal mining	Railway and other construction work	All other purposes	Total
Alabama	7,293,250	11,300	6,650	5,600	150	7,316,950
Alaska	270,000	-	-	-	-	270,000
Arizona	10,850	50	-	-	-	10,900
Arkansas	197,800	-	-	-	50	197,850
California	-	-	-	50	-	50
Colorado	857,080	3,400	6,100	300	25	866,905
Florida	-	-	-	-	500	500
Illinois	8,425,278	-	1,650	5,000	1,050	8,432,978
Indiana	1,941,425	-	3,250	-	4,500	1,949,175
Iowa	5,050	-	4,000	300	-	9,350
Kansas	20,550	-	61,600	-	-	82,150
Kentucky	15,389,121	-	5,850	950	-	15,395,921
Louisiana	-	-	69,100	-	-	69,100
Maryland and D. C.	385,900	-	1,000	-	-	386,900
Michigan	5,350	-	2,200	-	-	7,550
Missouri	32,100	-	-	-	-	32,100
Montana	251,100	-	-	-	-	251,100
New Jersey	-	-	-	-	150	150
New Mexico.....	299,950	-	6,000	22,500	-	328,450
New York	-	-	300	-	-	300
North Dakota ..	84,600	-	-	-	-	84,600
Ohio	2,483,230	-	9,200	-	-	2,492,430
Oklahoma	113,700	-	-	-	-	113,700
Oregon	2,000	-	-	-	-	2,000
Pennsylvania:						
Anthracite ..	17,404,173	13,000	4,650	9,700	20,400	40,847,216
Bituminous ..	23,395,293					
Tennessee	977,041	-	875	600	-	978,516
Texas	-	-	386,000	24,000	-	410,000
Utah	2,492,675	11,550	20,000	-	2,000	2,526,225
Virginia	4,809,220	-	53,650	3,650	400	4,866,920
Washington	478,400	-	7,500	6,000	19,500	511,4
West Virginia .	32,532,372	-	53,000	47,113	300	32,632,785
Wyoming	1,274,400	-	-	-	-	1,274,400
Total	121,431,908	39,300	702,575	125,763	49,025	122,348,57

September 22, 1948.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary

JAMES BOYD, Director

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MINERAL MARKET REPORT
MMS NO. 1657

IRON BLAST-FURNACE SLAG IN 1947

In 1947, iron blast-furnace slag processed for commercial uses reached a new high of 19,581,679 short tons valued at $19,525,482, a figure 17 percent above the 16,706,792 tons valued at $14,869,839 in 1946. These statistics are based on a canvass conducted by the National Slag Association, of the 38 companies operating 58 plants that prepare iron blast-furnace slag for commercial use. The results of this canvass were assembled in cooperation with the Bureau of Mines, United States Department of the Interior.

Screened air-cooled slag, the major product, reached a total of 16,712,177 short tons, an increase of 17 percent over the 1946 figure. Of this total, 15,426,367 tons, or 92 percent, was used as railroad ballast, as aggregate in portland cement concrete, bituminous construction of all types, miscellaneous highway construction uses, and in the manufacture of concrete block. The balance of the screened air-cooled slag was consumed in the manufacture of mineral wool, roofing granules, sewage filters, agricultural and other uses. Details of the tonnage and value of slag sold or used by processors in 1947, by uses, are shown in accompanying tables.

A notable development of the past year has been the substantial increase in the output of lightweight (expanded) slag. Production in 1947 totaled 1,130,636 short tons - 46 percent more than the tonnage reported for 1946.

Although iron blast-furnace slag is produced in 13 States, most of the material processed comes from Ohio, Alabama, Pennsylvania, and Illinois. Alabama, Ohio, and Pennsylvania accounted for 68 percent of the total tonnage reported.

As in 1946, railroads transported the bulk of the tonnage, followed by trucks and waterways; the percentages being 59, 40, and 1 respectively.

The slag processors in 1947 reported the recovery of 212,575 short tons of iron, an increase of 18 percent over the 180,432 short tons reclaimed in 1946. The recovery of this material still continues to perform an important service for the iron and steel industry.

Plant and yard employees in the industry totaled 2,216 and man hours totaled 5,212,930 as compared with 2,023 and 4,571,175, respectively, in 1946.

Prepared by D. G. Runner, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Tonnage - Air-Cooled Iron Blast-Furnace Slag Pr.oessed in the United States, 1947
(National Slag Association)

Use	Screened			Unscreened		
	Short tons	Value	Av. per ton	Short tons	Value	Av. per ton
Aggregate for Portland Cement Concrete Construction	1,605,568	$ 1,613,972.	$1.01			
Aggregate for Manufacture of Concrete Block	695,067	675,206	.97			
Aggregate for Bituminous Construction (All Types)	4,304,081	4,999,487	1.16	63	31	$ .49
Roads and Streets for uses other than as Aggregates under (1) and (3)	4,731,439	5,144,262	1.08	168,852	$ 96,776	.57
Railroad Ballast	4,040,212	3,122,933	.77	39,261	25,017	.64
Mineral Wool	635,336	757,557	1.19	307	154	.50
Roofing (Built Up	205,217	284,692	1.39			
(Granules	23,619	97,304	3.40			
Sewage Trickling Filter Media	20,010	22,889	1.14			
Agricultural Slag	50,939	61,225	1.20			
Other Uses	345,639	265,493	.77	239,425	135,705	.57
Total: 1947	16,712,177	17,045,020	1.03	447,908	257,683	.57
1946	14,332,896	13,250,693	.92	596,957	211,078	.35
1945	11,427,689	9,841,813	.86	406,775	140,527	.35
1944	10,730,613	9,260,257	.86	776,302	303,460	.39
1943	13,736,642	11,714,225	.85	1,364,779	540,465	.40
1942	13,591,896	11,832,670	.87	2,073,611	884,178	.43
1941	12,372,218	10,434,187	.84	797,363	390,082	.49
1940	8,132,396	7,015,616	.86	1,230,832	507,288	.41
1939	7,108,061	5,870,582	.83	812,220	361,554	.45

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

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FOR RELEASE OCTOBER 20, 1948

MINERAL MARKET REPORT
M.M.S. No. 1658

THE LIBRARY OF THE

STATISTICAL SUMMARY OF LIGNITE IN 1947

According to reports received by the Bureau of Mines, United States Department of the Interior, the production of lignite in 1947 totaled 2,873,653 net tons; an increase of 7.7 percent over the 2,667,619 tons produced in 1946. These figures do not include tonnage from small mines producing less than 1,000 tons. The average value per ton in 1947 was $1.92, compared with $1.68 per ton in 1946. The number of employees in 1947 totaled 747, a slight decrease from the 752 men employed in 1946. The output per man per day based upon calculated man-days was 15.38 tons. The industry worked an average of 250 days in 1947 compared with 236 in the previous year. North Dakota produced 96 percent of the total United States output of lignite; Montana, South Dakota, and Texas together produced the remaining 4 percent.

Strip-pit operations were the source of 82 percent of the total production of lignite in 1947. Of the 2,362,715 tons of lignite produced by this method of mining, 97 percent came from pits in North Dakota. The output from stripping operations in Montana, South Dakota, and Texas amounted to only 75,043 tons.

For 1947 the Bureau of Mines received reports from 59 mines producing 1,000 tons or more annually. Seven mines produced 81 percent of the total lignite mined; four mines accounted for 9 percent; and 48 mines, 10 percent.

According to the Federal Power Commission 975,566 tons of lignite were consumed in generating electric energy in 1947; this amounts to 34 percent of the total lignite mined in the United States in that year. The consumption in the West North Central States was 951,821 tons, the West South Central States and the Mountain States consumed 2,466 and 21,279 tons, respectively.

All data are submitted on a voluntary basis by producers of lignite and the Bureau of Mines wishes to thank them for their cooperation in supplying the data without which this report would not have been possible.

Prepared by Marian I. Cooke and J. A. Corgan, Chief Anthracite and Coke Section under the supervision of T. W. Hunter, Chief, Coal Economics Branch, Economics and Statistics Division.

Summary of production, value, men employed, days operated, man-days of labor, and output per man per day at lignite mines in the United States in 1947, by States 1/

	Montana 2/	North Dakota	South Dakota	Texas	Total
Production (net tons):					
Loaded at mines for shipment	....	2,228,163	420	60,504	2,289,087
Commercial sales by truck or wagon	38,469	458,278	14,158	......	510,905
Used by employees, taken by locomotives at tipple, and other uses	180	3/ 56,120	40	......	56,340
Used at mine for power and heat	20	17,301	......	......	17,321
Total production: 1947	38,669	2,759,862	14,618	60,504	2,873,653
1946	40,013	2,554,682	16,946	55,978	2,667,619
Value:					
Totals: 1947	$112,198	$5,312,084	$35,727	$59,293	$5,519,302
1946	$105,331	$4,301,603	$36,362	$46,454	$4,489,750
Average per ton: 1947	$2.90	$1.92	$2.44	$0.98	$1.92
1946	$2.63	$1.68	$2.15	$0.83	$1.68
Number of employees:					
Underground	28	154	2	......	184
Surface (including strip pits)	9	526	13	15	563
Total employees: 1947	37	680	15	15	747
1946	39	674	14	25	752
Average number of days mines operated:					
1947	185	255	176	240	250
1946	175	241	169	248	236
Man-days of labor: 1947	6,859	173,735	2,634	3,600	186,828
Average tons per man per day: 1947	5.64	15.89	5.55	16.81	15.38

1/ Exclusive of small mines producing less than 1,000 tons.

2/ Including output from Custer, Dawson, McCone, Richland, Roosevelt, and Sheridan Counties.

3/ Includes some lignite made into briquets.

Summary of stripping operations that produced lignite in the United States in 1947, by States

	Montana	North Dakota	South Dakota	Texas	Total
Number of strip pits 1/	1	30	3	1	35
Number of shovels, dragline excavators, and coal-loading machines 2/	.....	46	3	2	51
Coal produced by stripping	1,021	2,287,672	13,518	60,504	2,362,715
Total value at mines	$2,961	$4,405,241	$33,127	$59,293	$4,500,622
Average value per ton	$2.90	$1.93	$2.45	$0.98	$1.90
Number of employees:					
In strip pits	2	279	11	15	307
All others	.....	197	1	......	198
Total	2	476	12	15	505
Average number of days mines operated	121	249	194	240	247
Man-days of labor	242	118,536	2,331	3,600	124,709
Average tons per man per day	4.22	19.30	5.80	16.81	18.95

1/ Includes some pits in which stripping is done by hand.

2/ In some cases the same equipment was used for stripping or excavating and for loading coal; this duplication has been eliminated. In some cases coal was excavated by machine and loaded by hand.

Production, value, men employed, days operated, man-days of labor, and output per man per day at lignite mines in the United States in 1947, by States and counties

County	Total production (net tons)	Value		Total number of employees	Man-days of labor	Average number of days mine operated	Average tons per man per day
		Total	Average per ton				
MONTANA							
Custer	13,204	$40,659	$3.08	11	1,880	171	7.02
Dawson	2,704	7,597	2.81	4	720	180	3.76
McCone	1,021	2,961	2.90	2	242	121	4.22
Richland	8,357	25,232	3.02	5	1,250	250	6.69
Roosevelt	2,460	8,610	3.50	5	950	190	2.59
Sheridan	10,923	27,139	2.48	10	1,817	182	6.01
Total Montana	38,669	112,198	2.90	37	6,859	185	5.64
NORTH DAKOTA							
Adams, Bowman, and Burleigh	77,977	$177,088	$2.27	36	6,158	171	1/12.66
Burke	336,722	667,238	1.98	55	13,988	254	1/24.07
Divide	222,777	481,113	2.16	47	11,645	248	1/19.13
Dunn	5,200	12,750	2.45	3	640	213	8.13
Golden Valley	2,280	5,700	2.50	4	560	140	4.07
Grant	16,996	47,379	2.79	13	1,436	110	1/11.84
Hettinger	16,397	47,187	2.88	8	1,238	155	1/13.24
McLean	216,505	415,484	1.92	79	21,016	266	1/10.30
Mercer	1,162,075	2,054,973	1.77	234	66,830	286	1/17.39
Morton	34,376	80,583	2.34	28	4,978	178	6.91
Mountrail	8,000	17,500	2.19	4	624	156	1/12.82
Oliver	6,000	14,000	2.33	3	690	230	8.70
Stark	87,885	198,413	2.26	41	13,007	317	6.76
Ward	554,512	1,063,309	1.92	110	29,103	265	1/19.05
Williams	12,160	29,367	2.42	15	1,822	121	6.67
Total North Dakota	2,759,862	5,312,084	1.92	680	173,735	255	15.89
SOUTH DAKOTA							
Dewey	10,427	$29,263	$2.81	9	1,740	193	5.99
Perkins	4,191	6,464	1.54	6	894	149	4.69
Total South Dakota	14,618	35,727	2.44	15	2,634	176	5.55
TEXAS							
Milam: Total Texas	60,504	$59,293	$0.98	15	3,600	240	1/16.81

1/ Output is obtained chiefly from strip pits in which the production per man per day is large.

Number and production of lignite mines in the United States, in 1947, classified by size of output

Class	Mines		Production		
	Number	Percent	Net tons		Percent of total
			Total	Average per mine	
1. (100,000 tons and over)	7	11.8	2,338,488	334,070	81.4
2. (50,000 and under 100,000) ...	4	6.8	262,177	65,544	9.1
3. (10,000 and under 50,000)	6	10.2	111,249	18,542	3.9
4. (Under 10,000 tons)	42	71.2	161,739	3,851	5.6
Total	59	100.0	2,873,653	48,706	100.0

Lignite mined by different methods in the United States in 1947, by States, in net tons

	Montana	North Dakota	South Dakota	Texas	Total
From underground workings:					
Shot off the solid	37,098	27,872	1,100	......	66,070
Cut by machines 1/	550	444,318	......	......	444,868
Total underground ..	37,648	472,190	1,100	......	510,938
From strip pits	1,021	2,287,672	13,518	60,504	2,362,715
Grand total production ..	38,669	2,759,862	14,618	60,504	2,873,653

1/ A total of 11 machines was used - 6 "permissible" and 5 other types.

Lignite loaded for shipment in 1947, by individual railroads, as reported by operators, in net tons

Railroads	State	Quantity
Great Northern	North Dakota	514,520
Chicago, Milwaukee, St. Paul & Pacific	(North Dakota	40,798
	(South Dakota	420
Northern Pacific	North Dakota	1,052,739
Minneapolis, St. Paul & Sault Ste. Marie	North Dakota	620,106
Rockdale, Sandow & Southern	Texas	60,504
Total	....	2,289,087

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary **JAMES BOYD, Director**

FOR IMMEDIATE RELEASE

MINERAL MARKET REPORT
MMS NO. 1659

MINERAL EARTH PIGMENTS AND MANUFACTURED IRON OXIDE PIGMENTS IN 1947

During 1947 the demand for mineral earth pigments remained at a high level and total domestic output was approximately the same as in 1946.

The following pigment processors contributed 1947 production data given in the subsequent table:

American Pigment Corporation, Pulaski, Va. (Plants at Hiwassee and Pulaski, Va.)
Blue Ridge Talc Co., Inc., P. O. Box 7, Henry, Va.
Calco Chemical Div., American Cyanamid Co., Mount Oliver Ave., Newark, N.J. (Plant at Piney River, Va.)
Clinton Metallic Paint Co., Box 278, Clinton, N.Y.
E. I. du Pont de Nemours & Company, Inc., Procedures & Reports Div., Du Pont Bldg., Wilmington 98, Del.
Forche & Smith, Falls Creek, Pa.
Keystone Filler & Mfg. Co., Muncy, Pa.
Magnetic Pigment Division, Columbian Carbon Co., 41 E. 42nd St., New York 17, N.Y. (Plants at Trenton and Monmouth Junction, N. J.)
Geo. S. Mepham Corporation, 2001 Lynch Ave., East St. Louis, Ill.
The Micronizer Products Co., Charlotte, Mich.
Mineral Pigments Corporation, Washington Blvd., Muirkirk, Md.
Minnesota Mining and Mfg. Co., 900 Fauquier Ave., St. Paul, Minn. (Plant at Copley, Ohio.)
National Aluminate Corporation, 6216 W. 66th Place, Chicago 38, Ill. (Plant at Bowman, N. Dak.)
New Riverside Ochre Co., Cartersville, Ga.
Penn Paint & Filler Co., Antes Fort, Pa.
Prince Mfg. Co., Bowmanstown, Pa.
Reichard-Coulston, Inc., 15 E. 26th St., New York 10, N. Y. (Plant at Bethlehem, Pa.)
Ricketson Mineral Color Works, 229 E. Wisconsin Ave., Milwaukee 2, Wis.
Seminole Pigment Co., Easton, Pa. (Plant at Warren, Ohio.)
Geo. B. Smith Chemical Works, Inc., Maple Park, Ill.
Solomon Grinding Service, 1116 Ridgely Bldg., Springfield, Ill.
Synthetic Iron Color Co., P.O. Box 1157, Richmond, Calif.
C. K. Williams & Co., 640 N. 13th St., Easton, Pa.
C. K. Williams & Co. of California, Ltd., 4650 Snellmound St., Emeryville 8, Calif.

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Prepared by Joseph C. Arundale and A. L. Marks, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Divison.

Natural mineral pigments and manufactured iron oxide pigments sold by processors in the United States, 1946-47, by kinds

	1946		1947	
	Short tons	Value	Short tons	Value
Mineral blacks	6,369	$118,171	(1/)	(1/)
Precipitated magnetic blacks	(1/)	(1/)	(1/)	(1/)
Natural brown oxides (metallic browns)	5,823	276,379	5,861	$308,440
Vandyke brown (finished pigment)	(1/)	(1/)	(1/)	(1/)
Sap brown	-----	--------	-----	--------
Pure browns (96 percent or better iron oxides)	1,018	206,806	1,016	219,686
Natural red oxides	22,436	972,405	20,524	946,997
Pure red oxides (98 percent or better Fe_2O_3)	17,050	3,117,706	17,331	3,481,083
Venetian reds	9,727	721,354	7,127	579,603
Pyrite cinder	964	52,471	1,682	110,863
Other red iron oxides	17,345	1,683,166	18,817	2,214,358
Natural yellow oxides (high Fe_2O_3)	(1/)	(1/)	(1/)	(1/)
Pure yellows (85 percent or better Fe_2O_3)	2/ 9,527	2/1,293,379	10,496	1,635,365
Ochers (low Fe_2O_3)	2/10,774	2/250,168	9,130	213,133
Siennas:				
Burnt	1,197	168,978	940	141,943
Not burnt	2,401	303,483	1,441	201,493
Umbers:				
Burnt	3,727	325,856	3,051	322,688
Not burnt	916	68,615	671	61,443
Other	2/5,823	2/445,213	17,280	730,066
	115,097	10,004,150	115,367	11,167,161

1/ Included under "Other."
2/ Revised.

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UNITED STATES DEPARTMENT OF THE INTERIOR

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MINERAL MARKET REPORT
MMS NO. 1660

CRUSHED AND BROKEN STONE IN 1947

The output of crushed and broken stone in the United States in 1947, as reported by producers to the Bureau of Mines, United States Department of the Interior, totaled 206,136,330 short tons valued at $248,451,960. These figures represent an increase of 16 percent in quantity and 23 percent in value over the 1946 figures. Included in this total is stone used for concrete aggregate, railroad ballast, metallurgical use (flux), agricultural limestone, refractory stone, riprap, stone sand, alkali works, calcium carbide works, sugar and glass factories, paper mills, and in various other chemical and manufacturing processes. Stone used in the manufacture of lime and cement, asphaltic stone, and slate used for granules and flour are not included in this total.

Crushed and broken stone used for concrete aggregates and railroad ballast (60 percent of total output in 1947) increased 15 percent in quantity and 26 percent in value, compared with 1946. Eighty-nine percent of the 107,077,590 short tons used for concrete aggregate was produced by commercial operators and 11 percent by Government agencies.

Metallurgical uses, which took 16 percent of the total crushed and broken stone in 1947, showed an increase of 29 percent in quantity and 38 percent in value. Limestone for agricultural purposes (11 percent of total tonnage of crushed stone in 1947) decreased 1 percent in quantity but increased 8 percent in value compared with 1946. Other uses consumed 13 percent of the total, or 27,532,710 short tons valued at $45,367,803.

In 1947, limestone, including dolomite, constituted 73 percent of all crushed and broken stone sold (excluding that used for making cement and lime), and was quarried in all but four States.

The following tables present the salient statistics of the crushed and broken stone industries in 1947.

Prepared by D. G. Runner and N. C. Jensen, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Crushed and broken stone sold or used by producers in the United States, 1946-47 by principal uses

Use	1946			1947		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Concrete and road metal	90,358,900	$97,765,446	$1.08	107,077,590	$125,753,455	$1.17
Railroad ballast.......	16,908,350	13,127,058	.78	16,350,260	13,566,869	.83
Furnace flux(limestone)	25,157,760	20,791,833	.83	32,570,270	28,687,950	.88
Agricultural(limestone)	22,781,750	32,482,907	1.43	22,605,500	35,075,833	1.55
Alkali works..........	7,418,690	5,230,804	.71	7,074,270	5,295,318	.75
Riprap................	3,847,550	5,010,207	1.30	5,732,740	6,513,792	1.14
Refractory stone 1/....	2,088,080	4,157,179	1.99	2,704,220	5,536,738	2.05
Asphalt filler.........	459,020	1,270,734	2.77	486,470	1,422,998	2.93
Calcium carbide works..	411,660	437,231	1.06	846,360	846,293	1.00
Sugar factories........	378,720	693,058	1.83	649,420	1,349,386	2.08
Glass factories........	648,250	1,163,161	1.79	756,930	1,576,701	2.08
Paper mills............	385,620	685,912	1.78	569,930	1,049,591	1.84
Other uses.............	6,633,430	18,551,736	2.80	8,711,870	21,776,486	2.50
	177,477,780	201,367,266	1.13	206,136,330	248,451,960	1.21
Portland and natural cement and cement rock 2/............	43,877,000	(3/)	---	49,530,000	(3/)	---
Lime 4/...............	11,985,000	(3/)	---	13,558,000	(3/)	---
	233,340,000	(3/)	---	269,224,000	(3/)	---

1/Ganister (sandstone), mica schist, dolomite, and soapstone.
2/Value reported as cement in chapter on Cement.
3/No value available for stone used in manufacture of cement and lime.
4/Value reported as lime in chapter on Lime.

Crushed stone sold or used in the United States in 1947, by methods of transportation

Methods of transportation	Commercial operations		Commercial and noncommercial 1/ operations	
	Short tons	Percent of total	Short tons	Percent of total
Truck..........................	83,726,780	44	97,897,760	47
Rail...........................	74,359,910	39	74,359,910	36
Waterway.......................	22,258,940	11	22,258,940	11
Unspecified....................	11,619,720	6	11,619,720	6
	191,965,350	100	206,136,330	100

1/ For practical purposes it is assumed that the entire output of noncommercial operations is moved by truck.

~~Crushed and broken~~ stone sold or used by producers in the United States in 1947, by kinds

Kind	Concrete and road metal			Railroad ballast		
	~~Short tons~~	Value		Short tons	Value	
		Total	Average		Total	Average
Granite	7,955,090	$10,709,994	$1.35	2,433,820	$2,722,957	$1.12
Basalt	15,612,910	20,392,145	1.31	2,238,660	2,354,978	1.03
Marble	-------	-------	---	-------	-------	---
Limestone	69,589,880	80,997,542	1.16	6,732,150	6,399,884	.94
Sandstone	3,026,090	3,396,710	1.29	710,240	605,974	.85
Miscellaneous stone1/	10,893,620	9,757,064	.90	4,135,390	1,483,076	.36
	107,077,590	125,753,455	1.17	16,350,260	13,566,869	.83

Kind	Other uses			Total		
	Short tons	Value		Short tons	Value	
		Total	Average		Total	Average
Granite	1,532,780	$1,409,722	$0.92	11,921,690	$14,842,673	$1.25
Basalt	1,675,610	2,937,367	1.75	19,577,180	25,684,490	1.31
Marble	141,960	1,015,444	7.15	141,960	1,015,444	7.15
Limestone	73,494,160	91,929,369	1.25	149,866,190	179,326,795	1.20
Sandstone	2,885,220	8,427,860	2.92	6,621,550	12,930,544	1.95
Miscellaneous stone1/	2,978,750	3,411,874	1.15	18,007,760	14,652,014	.81
	82,708,480	109,131,636	1.32	206,136,330	243,451,960	1.21

1/Includes soapstone, mica schist, volcanic rock, argillite, and other varieties that cannot be classified in the principal groups.

Stone for concrete and road metal sold or used by commercial and noncommercial operators in the United States, 1943-47

(Figures for "noncommercial operations" represent tonnages reported by States, counties, municipalities, and other Government agencies, produced either by themselves or by contractors expressly for their consumption, often with publicly owned equipment; they do not include purchases from commercial producers. Figures for "commercial operations" represent tonnages reported by all other producers.)

Year	Commercial operations		Noncommercial operations		Total		
	Short tons	Average value per ton	Short tons	Average value per ton	Short tons	Average value per ton	Percent of change in quantity from preceding year
1943	74,906,610	$1.01	7,505,770	$1.05	82,412,380	$1.01	-23
1944	56,815,950	1.02	7,979,540	1.06	64,795,490	1.02	-21
1945	59,347,220	1.01	4,760,970	1.12	64,108,190	1.02	- 1
1946	83,879,680	1.07	6,479,220	1.23	90,358,900	1.08	+41
1947	95,178,440	1.19	11,899,150	1.09	107,077,590	1.17	+19

Limestone (crushed and broken stone) sold or used by producers in the United States in 1946-47, by uses

Use	1946		1947	
	Short tons	Value	Short tons	Value
Riprap	1,590,120	$2,050,718	1,460,340	$2,014,278
Fluxing stone	25,157,760	20,791,333	32,570,270	28,687,950
Concrete and road metal	62,270,570	66,307,005	69,589,880	80,997,542
Railroad ballast	7,330,420	6,083,202	6,782,150	6,399,884
Agriculture	22,781,750	32,482,907	22,605,500	35,075,883
Alkali works	7,418,690	5,230,804	7,074,270	5,295,318
Calcium carbide works	411,660	437,231	846,860	846,293
Coal-mine dusting	208,830	632,729	386,980	1,351,922
Filler (not whiting substitute):				
Asphalt	459,020	1,270,734	486,470	1,422,998
Fertilizer	553,680	1,076,728	483,770	862,389
Other	220,370	645,440	143,270	371,921
Filter beds	16,410	33,324	33,970	61,566
Glass factories	648,250	1,163,161	756,930	1,576,701
Limestone sand	622,230	437,882	743,060	651,607
Limestone whiting 1/	405,380	3,523,025	492,040	4,237,606
Magnesia works (dolomite) 2/	294,360	464,750	358,320	458,075
Mineral food	373,630	1,697,507	402,070	1,937,359
Mineral (rock) wool	22,200	23,400	25,780	30,469
Paper mills	385,620	685,912	569,930	1,049,591
Poultry grit	117,630	822,985	66,710	543,476
Refractory (dolomite)	1,035,110	1,146,864	1,540,740	1,728,623
Road base	283,820	252,806	771,010	523,573
Stucco, terrazzo, and artificial stone	25,830	171,113	32,560	309,919
Sugar factories	378,720	693,058	649,420	1,349,886
Other uses 3/	447,350	543,291	579,450	955,037
Use unspecified	753,930	1,101,884	414,440	586,909
	134,213,340	149,770,293	149,866,190	179,326,795

1/ Includes stone for filler for calcimine, caulking compounds, ceramics, explosives, floor coverings, foundry compounds, glue, insecticides, leather goods, paint, paper, phonograph records, picture-frame moldings, plastics, pottery, putty, roofing, rubber, tooth paste, wire coating, and unspecified uses.

2/ Includes stone for refractory magnesia.

3/ Includes stone for acid neutralization, athletic-field marking, carbon dioxide, chemicals (unspecified), concrete blocks and pipes, dyes, fill material, light bulbs, motion-picture snow, oil-well drilling, patching plaster, pharmaceuticals, rayon, roofing granules, spalls, and water treatment.

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MINERAL MARKET REPORT
MMS NO. 1661

DIMENSION STONE IN 1947

Dimension stone (exclusive of slate) sold or used by producers in the United States in 1947, as reported by the producers to the Bureau of Mines, United States Department of the Interior, totaled 1,418,460 short tons valued at $40,892,522, an increase of 3 percent in quantity and 24 percent in value, compared with 1946. This total includes all dimension stone sold or used for rough construction, cut stone, slabs, mill blocks, rubble, monumental purposes, paving blocks, curbing, and flagging.

The quantity of dimension stone used as building stone continued the upward trend begun in 1945. Sales of building stone in 1947 (9,621,430 cubic feet valued at $18,610,706) showed an increase of 5 percent in quantity and 35 percent in value compared with 1946. Rubble, also classed as a building stone but not included in the above total for dimension stone, decreased 8 percent in quantity but increased 10 percent in value.

Memorial stone production, an important branch of the granite and marble industries, continued at relatively high levels. Sales of stone for monumental purposes amounted to 3,778,060 cubic feet, valued at $19,814,723 in 1947, an increase of 3 percent in quantity and 14 percent in value.

Paving block sales, in 1947, increased 18 percent in number, 11 percent in value, but decreased 8 percent in tonnage.

Curbing sales rose 69 percent in quantity and 104 percent in value over 1946 figures, while flagstone sales increased 9 percent in quantity and 12 percent in value.

The following tables present the salient statistics of the dimension-stone industries in 1947.

Prepared by D. G. Runner and N. C. Jensen, under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Dimension stone sold or used by producers in the United States, 1946-47, by kinds and uses

Kind and use	1946	1947	
		Total	Percent of change
Granite:			
Building stone:			
Rough construction..........short tons	69,750	73,060	+ 5
Value..........	$380,338	$322,004	-15
Average per ton..........	$5.45	$4.41	-19
Cut stone, slabs and mill blocks......cubic feet	538,810	509,830	- 5
Value..........	$2,127,124	$2,863,506	+35
Average per cubic foot..........	$3.95	$5.62	+42
Rubble..........Short tons	130,820	86,910	-34
Value..........	$263,045	$214,221	-19
Monumental stone..........cubic feet	3,194,740	3,268,650	+ 2
Value..........	$13,433,094	$14,854,098	+11
Average per cubic foot..........	$4.20	$4.54	+ 8
Paving blocks..........number...	578,750	683,950	+18
Value..........	$50,346	$56,118	+11
Curbing..........cubic feet	314,540	553,910	+76
Value..........	$458,312	$970,840	+112
Total:			
Quantity..........approximate short tons.	535,230	521,630	- 3
Value..........	$16,712,263	$19,280,787	+15
Basalt and related rocks (trap rock):			
Building stone:			
Rough construction..........short tons	20,470	23,020	+12
Value..........	53,237	$59,332	+11
Average per ton..........	$2.60	$2.58	- 1
Rubble..........short tons	29,460	15,820	-46
Value..........	$17,232	$11,492	-33
Total:			
Quantity..........short tons	49,930	38,840	-22
Value..........	$70,469	$70,324	+ 1
Marble:			
Building stone (cut stone, slabs, and mill blocks)..........cubic feet	422,880	501,590	+19
Value..........	$3,079,553	$4,276,453	+39
Average per cubic foot..........	$7.28	$8.53	+17
Monumental stone..........cubic feet	483,180	509,410	+ 5
Value..........	$4,001,462	$4,960,625	+24
Average value per cubic foot..........	$8.28	$9.74	+18
Total:			
Quantity..........approximate short tons.	77,010	85,920	+12
Value..........	$7,081,015	$9,237,078	+30

Kind and use	1946	1947	
		Total	Percent of change
Limestone:			
Building stone:			
Rough construction .... short tons	57,670	45,790	-21
Value	$147,420	$112,868	-23
Average per ton	$2.56	$2.46	-4
Cut stone, slabs, and mill blocks..cu. ft.	4,678,050	4,839,130	+3
Value	5,516,423	$6,793,365	+23
Average value per cubic foot	$1.18	$1.40	+19
Rubble .... short tons	95,020	129,900	+37
Value	$170,832	$247,833	+45
Flagging .... cubic feet	90,240	145,620	+61
Value	44,229	67,425	+52
Total:			
Quantity .... approximate short tons	504,070	542,630	+8
Value	$5,873,904	$7,221,491	+23
Sandstone:			
Building stone:			
Rough construction.................short tons	24,880	25,300	+4
Value	$134,644	$118,561	-12
Average per ton	$5.41	$4.60	-15
Cut stone, slabs, and mill blocks..cu. ft.	1,014,600	1,352,980	+33
Value	$1,466,105	$2,680,937	+83
Average per cubic foot	$1.45	$1.98	+37
Rubble ....short tons	27,940	27,640	-1
Value	$176,994	$208,239	+18
Curbing ....cubic feet	60,360	80,950	+34
Value	$86,165	$139,057	+61
Flagging ....cubic feet	363,620	368,400	+1
Value	463,170	509,166	+10
Total:			
Quantity.......approximate short tons	160,900	187,530	+17
Value	$2,327,073	$3,655,960	+57
Miscellaneous stone: 1/			
Building stone.................... cubic feet	416,470	386,180	-7
Value	$863,029	$1,383,680	+60
Average per cubic foot	$2.07	$3.58	+73
Rubble ....short tons	10,190	8,620	-15
Value	$21,492	$33,511	+56
Flagging ....cubic feet	21,760	6,470	-71
Value	$17,965	9,191	-49
Total:			
Quantity.......approximate short tons	47,440	41,910	-12
Value	$902,486	1,426,382	+58
Total dimension stone, excluding slate:			
Quantity............approximate short tons	1,374,580	1,418,460	+3
Value	$32,972,220	$40,892,522	+24
Slate as dimension stone. approx. short tons	96,250	112,510	+17
Value	$3,419,502	$5,077,320	+48
Total dimension stone, including slate:			
Quantity ....approximate short tons	1,470,830	1,530,970	+4
Value	$36,391,722	$45,969,842	+26

1/ Includes soapstone, mica schist, volcanic rocks, argillite, and other varieties that cannot be classified in the principal groups.

Dimension stone sold or used by producers in the United States, 1946-47, by uses

Use	1946		1947	
	Quantity	Value	Quantity	Value
Dimension stone:				
Building stone:				
Rough construction .... short tons	208,170	$1,578,668	200,420	$1,996,445
Cut stone, slabs, & mill blocks cu.ft.	6,654,340	12,189,205	7,203,530	16,614,261
Approximate equivalent in short tons.	499,050	....	538,870	....
Rubble ...., short tons	293,430	649,604	268,890	715,296
Monumental stone .... cubic feet	3,677,920	17,434,556	3,778,060	19,814,723
Approximate equivalent in short tons.	300,070	....	312,150	....
Paving blocks .... number ..	578,750	50,346	683,950	56,118
Approximate equivalent in short tons.	5,270	....	4,830	....
Curbing ....cubic feet	374,900	544,477	634,860	1,109,897
Approximate equivalent in short tons.	30,460	....	51,860	....
Flagging ....cubic feet	475,620	525,364	520,490	585,782
Approximate equivalent in short tons.	38,130	....	41,440	....
Total dimension stone (quantities approximate, in short tons)	1,374,580	32,972,220	1,418,460	40,892,522

Building stone sold or used by producers in the United States in 1947, by kinds

Kind	Rough			
	Construction		Architectural	
	Cubic feet	Value	Cubic feet	Value
Granite	877,170	$322,004	115,790	$136,883
Basalt..........................	273,290	59,332	....	....
Marble	....	....	175,720	532,622
Limestone	554,990	112,868	2,572,620	2,078,620
Sandstone	326,270	118,561	134,720	154,949
Miscellaneous stone	1/ 386,180	1/1,383,680	....	....
	1/2,417,900	1/1,996,445	2,998,850	2,903,074

Kind	Finished				Total	
	Sawed		Cut			
	Cubic feet	Value	Cubic feet	Value	Cubic feet	Value
Granite 2/.....	208,210	$945,123	185,830	$1,781,500	1,387,000	$3,185,510
Basalt.........	....	....	....	....	273,290	59,332
Marble.........	136,090	975,061	189,780	2,768,770	501,590	4,276,453
Limestone	1,572,810	1,824,400	693,700	2,890,345	5,394,120	6,906,233
Sandstone	1,072,960	1,866,675	145,300	659,313	1,679,250	2,799,498
Miscellaneous .	(1/)	(1/)	....	....	386,180	1,383,680
	1/2,990,070	1/5,611,259	1,214,610	8,099,928	9,621,430	18,610,706

1/ Sawed miscellaneous stone included with construction stone.

2/ Sawed stone corresponds to dressed stone for construction work (walls, foundations, bridges) and cut stone to architectural stone for high-class buildings.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary James Boyd, Director

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MMS NO. 1662
Mineral Market Report

Abrasive Materials in 1947

Owing to the high level of construction and industrial production in 1947 the demand for most abrasive materials increased substantially. New sales records were established for ground sand and sandstone, pumice and pumicite, and metallic abrasives, according to reports of producers to the Bureau of Mines, U.S. Department of the Interior. The demand for pumice and pumicite for use in aggregate as a construction material in western States was especially noteworthy, as was the increased output of steel shot and grit (metallic abrasives).

Sales of ground sand and sandstone in 1947 increased 13 percent to 651,120 tons valued at $5,181,113. Pumice and pumicite sold or used, principally for use in aggregate or for abrasive purposes, jumped 36 percent. Sales of diatomite and quartz indicated active markets. Tonnage of tripoli marketed in 1947 was the largest since 1937, and the value the highest yet recorded. Sales of garnet in 1947 totaled 8,722 short tons, nearly reaching the record level of 1923 (9,006 tons), while sales of grinding pebbles increased 26 percent over 1946. Marketed output of emery, grindstones, and tube-mill liners was less in 1947 than in 1946.

With respect to artificial abrasives, production of silicon carbide remained virtually at the same level as in 1946. Output of aluminum oxide, however, rose sharply to slightly over 160,000 short tons, and for the first time, shipments of metallic abrasives surpassed 150,000 tons.

The value of imports for consumption in the United States of natural abrasive products declined 8 percent compared with 1946. The largest part of this decrease was due to a 11 percent drop in value of imports of diamond bort. As in 1946, this decline was accompanied by a smaller volume of carats. Imports of corundum ore and garnet also showed large decreases compared with 1946. Receipts of emery ore, however, were 21 percent greater than in 1946, those of "crude or unmanufactured" pumice were 43 percent higher and of "flint, flints, flintstones, unground," 64 percent higher. The value of total exports of all natural abrasive products increased 38 percent compared with 1946.

Prepared by Robert W. Metcalf under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Salient statistics of the abrasive industries in the United States, 1946-47

	1946		1947		Percent of change in 1947	
	Short tons	Value	Short tons	Value	Short tons	Value
Natural abrasives:						
Domestic production (sold or used by producers):						
Diatomite	(1)	(1)	(1)	(1)	....	....
Tripoli	28,955	$549,099	34,578	$751,442	+19	+37
Quartz	73,179	293,852	73,347	368,977	(2)	+26
Ground sand and sandstone	575,883	4,125,398	651,120	5,181,113	+13	+26
Grindstones	11,605	501,444	10,620	476,811	-8	-5
Pulpstones	72	3,880	76	4,976	+6	+28
Oilstones and related products	(3)	(3)	(3)	(3)	....	....
Millstones	(4)	14,730	(4)	23,189	....	+57
Tube-mill liners	2,375	44,247	1,496	40,303	-37	-9
Grinding pebbles	4,652	102,043	5,860	122,333	+26	+20
Pumice and pumicite	319,863	1,585,753	442,552	2,021,880	+38	+28
Garnet	7,743	570,136	8,722	614,071	+13	+8
Emery	6,158	62,009	5,796	66,927	-6	+8
Artificial abrasives:						
Silicon carbide-production 5/	63,849	5,457,903	63,724	5,633,811	(6)	+3
Aluminum oxide-production 5/	132,084	8,367,158	160,022	10,158.432	+21	+21
Metallic abrasives (steel shot and grit)-shipments	111,512	6,387,819	154,191	12,449,855	+38	+95
Foreign trade:						
Imports	(7)	15,320,284	(7)	14,054,978	...	-8
Exports	(7)	2,426,853	(7)	3,351,546	...	+38

1/ Average annual figure for 1945-47 was 213,588 short tons valued at $4,307,088; Bureau of Mines not at liberty to publish annual data separately.

2/ Increase of less than 0.5 percent.

3/ Bureau of Mines not at liberty to publish.

4/ Tonnage of millstones not recorded.

5/ Includes Canadian production.

6/ Decrease of less than 0.5 percent.

7/ Weight cannot be recorded because of varying units.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

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MINERAL MARKET REPORT
M. M. S. NO. 1663

PRODUCTION OF ROLLED ZINC IN 1947

The quantity of slab zinc consumed for rolled products in 1947 dropped 24 percent below the 1946 figure, according to the Bureau of Mines, United States Department of the Interior. The total value of the rolled products, however, was only 9 percent lower than in 1946 owing to an advance in the average price.

Production of rolled zinc in 1947 totaled 71,197 tons valued at $23,730,260 compared with 92,648 tons valued at $26,055,882 in 1946. Output of boiler plate and sheets (over 0.1 inch thick) gained 1 percent, whereas production of sheet zinc strip and ribbon zinc, and foil, rod and wire decreased 24, 24, and 27 percent, respectively. Strip and ribbon zinc, the largest item produced, accounted for 67 percent of the total production, the same as in 1946.

During 1947 zinc rolling mills reported the consumption of 70,680 tons of slab zinc and 3,050 tons of purchased zinc scrap compared with 92,397 tons of slab zinc and 3,313 tons of purchased zinc scrap in 1946. In addition, 14,952 tons of strip and ribbon zinc were remelted and rerolled from scrap originating in fabricating plants operated in connection with zinc rolling mills.

The following grades of slab zinc were used:

	Short tons 1946	Short tons 1947
Special High Grade.......	3,854	2,065
Regular High Grade.......	35,778	24,961
Intermediate.............	11,545	18,740
Brass Special............	36,498	23,803
Selected.................	1,160	0
Prime Western............	3,562	1,111
	92,397	70,680

Inventories of slab zinc on hand at rolling mills were 6,548 tons at the beginning and 6,590 tons at the end of 1947. Stocks of rolled zinc were 1,852 tons on December 31, 1947, compared with 2,588 tons (revised figure) on the same date in 1946.

Prepared by Richard H. Mote, under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

Production of rolled zinc in the United States, 1946-1947

	1946			1947		
		Value			Value	
	Short tons	Total	Average per pound	Short tons	Total	Average per pound
Production:						
Sheet zinc not over 0.1 inch thick....	27,088	$8,581,082	$0.158	20,598	$7,357,171	$0.180
Boiler plate and sheets over 0.1 inch thick........	1,615	389,904	.121	1,624	578,853	.148
Strip and ribbon zinc 1/...........	62,350	16,460,388	.132	47,837	15,253,466	.164
Foil, rod, and wire	1,595	624,508	.196	1,138	540,770	.238
Total rolled zinc.	92,648	26,055,882	.141	71,197	23,730,260	.167
Imports.............	(2)	----------	------	1	457	.229
Exports.............	11,957	3,693,009	.154	7,590	3,089,848	.204
Available for consumption...........	3/80,633	----------	------	3/64,344	----------	------
Value of slab zinc (all grades).......	------	----------	.089	------	----------	.107
Value added by rolling................	------	----------	.052	------	----------	.060

1/ Figures represent net production. In addition, 18,670 tons of strip and ribbon zinc in 1946 and 14,952 tons in 1947 were rerolled from scrap originating in fabricating plants in connection with zinc rolling mills.

2/ Less than 1 ton.

3/ Allowances made for change in producers' stocks of rolled zinc.

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MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

J. A. KRUG, Secretary JAMES BOYD, Director

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FOR RELEASE November 22, 1948.

MINERAL MARKET REPORT
M.M.S. No. 1664

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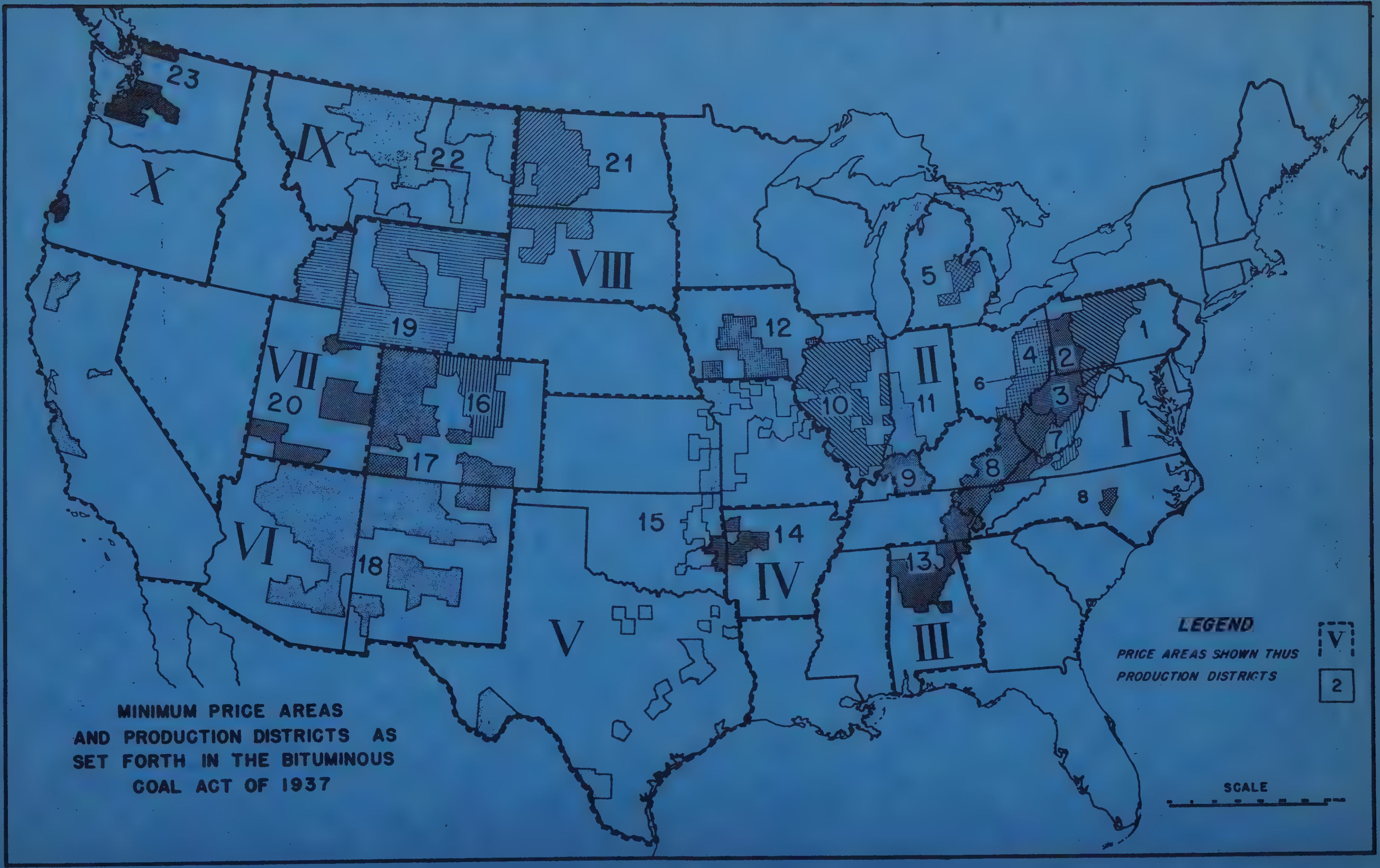
BITUMINOUS COAL AND LIGNITE IN 1947

Prepared by W. H. Young, R. L. Anderson,
and E. M. Hall under the supervision
of T. W. Hunter, Chief, Coal Economics
Division, Economics and Statistics Branch.



MINIMUM PRICE AREAS
AND PRODUCTION DISTRICTS AS
SET FORTH IN THE BITUMINOUS
COAL ACT OF 1937

BITUMINOUS COAL AND LIGNITE

SUMMARY OUTLINE

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SURVEY OF THE BITUMINOUS-COAL AND LIGNITE INDUSTRY IN 1947

The purpose of this interim report is to make available, as soon as possible after the completion of the annual canvass, the final figures on the bituminous-coal industry for the calendar year 1947. The Minerals Yearbook, 1948, will, as in the past, carry preliminary data for 1948 and final figures for 1947.

Production. - The production of soft coal in 1947 - an output of 630,623,722 net tons 1/ - increased 18 percent over the 533,922,068 tons produced in 1946. This was the largest production on record and is attributable to the heavy demand throughout the year and the fact that there were fewer and shorter strikes than in the previous year. The estimated loss of production due to strikes in 1947 was 19,000,000 tons, compared to 107,000,000 tons in 1946, computed at the going rate of production immediately prior to the strikes. According to the Bureau of Labor Statistics, there were 415 strikes in soft-coal mines in 1947, with 490,000 workers involved and 2,190,000 man-days lost (an average of 5 days per man). The Solid Fuels Administration for War was discontinued on June 30, 1947. There was practically no seasonal decline in production in 1947, due to strong demand in the summer months. Throughout most of the year production was over 12,000,000 tons per week, except when output was reduced because of strikes or holidays.

Consumption. - All major classes of consumers except railroads and retail dealers used more coal in 1947 than in 1946. The total consumption in 1947 was approximately 56,857,000 tons more than in 1946. Table 6 shows trends in consumption for the major classes of consumers.

Changes in stocks. - The reserve supply of bituminous coal and lignite in the hands of industrial consumers and retail coal yards increased from 47,157,000 tons at the beginning of 1947 to 52,161,000 tons at the close. The days' supply of stocks increased from 32 to 33. Stocks on the upper Lake docks increased 46,390 tons from January 1 to December 31, 1947.

Mechanization. - The quantity of coal loaded mechanically at underground mines in the United States continued to advance during 1947. Mechanical loading increased from 58 percent of the total underground output in 1946 to 61 percent in 1947. Sales of underground loading equipment, in terms of capacity, were 16 percent less in 1947 than in 1946.

1/ Throughout this report "tons" refers to net tons of 2,000 pounds unless otherwise indicated.

Mechanical cleaning. - The total capacity of mechanical-cleaning equipment sold for use at bituminous-coal mines in 1947 was estimated at 17,300 tons of cleaned coal per hour, a decrease of 4 percent from the previous year.

Trend of employment. - The average men working at bituminous-coal and lignite mines in 1947 increased to 419,182 men from 396,434 men employed in 1946.

Index to capacity. - The potential output upon a 308-day basis (6-day week, full-time capacity) was 830,000,000 tons in 1947. Since it is not possible for all mines to operate 308 days per year, the more conservative figure of 280 days was suggested some years ago by the coal committee of the American Institute of Mining and Metallurgical Engineers (see Minerals Yearbook, 1935, pp. 631-632). The average output per day worked in 1947 was 2,694,973 tons, which (if applied to 280 days) gives an annual potential output of 755,000,000 tons compared with the actual total production of 630,623,722 tons.

Trends in Fuel Efficiency. - Since 1942 the trend in fuel efficiency has been mixed. During 1947 freight service on railroads exhibited increased fuel efficiency, while passenger service and electric public-utility power plants registered decreased fuel efficiency.

Competition with oil and gas. - Soon after the close of the war, increased competition between the fuels developed, with numerous reports of conversion from coal to fuel oil.

Electric power utilities consumed 25 percent more bituminous coal, 25 percent more fuel oil, and 22 percent more gas in 1947 than in 1946.

Class I railroads decreased their consumption of coal 1 percent in 1947, and their purchases of fuel oil decreased 2 percent from 1946 purchases.

The manufacture of domestic coal-burning equipment is reflected in statistics published by the Bureau of the Census. Factory sales of domestic stokers for burning bituminous coal decreased from 164,304 in 1946 to 53,372 in 1947. Shipments of domestic oil burners, boiler-burner units, and furnace-burner units increased from 499,009 in 1946 to 1,076,565 in 1947.

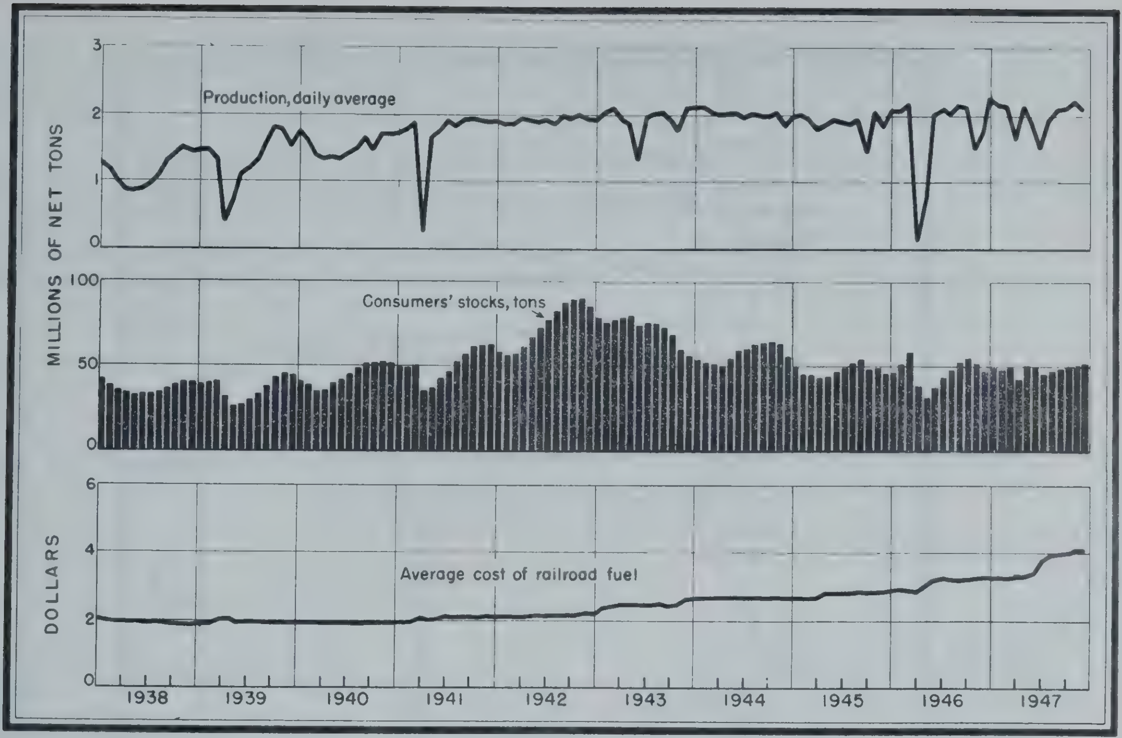

Figure 1. - Trends of production, stocks, and prices of bituminous coal and lignite in the United States, 1938-47.

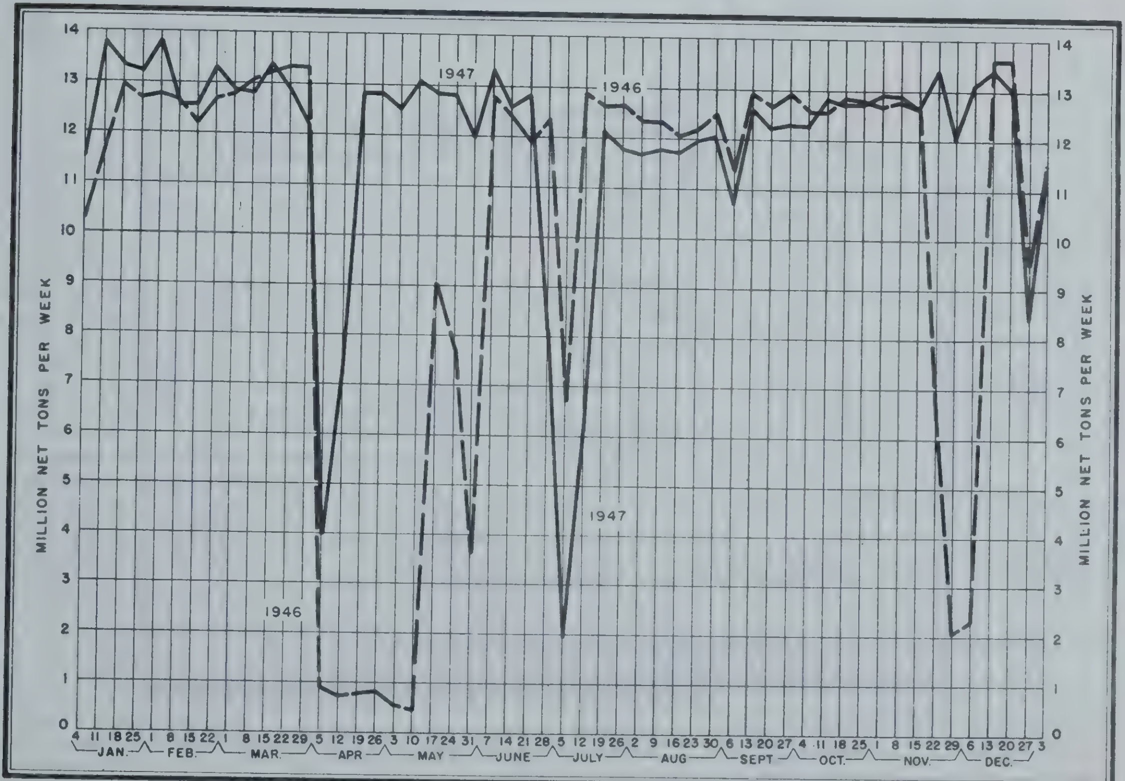

Figure 2. - Production of bituminous coal and lignite in the United States, by weeks, 1946-47.

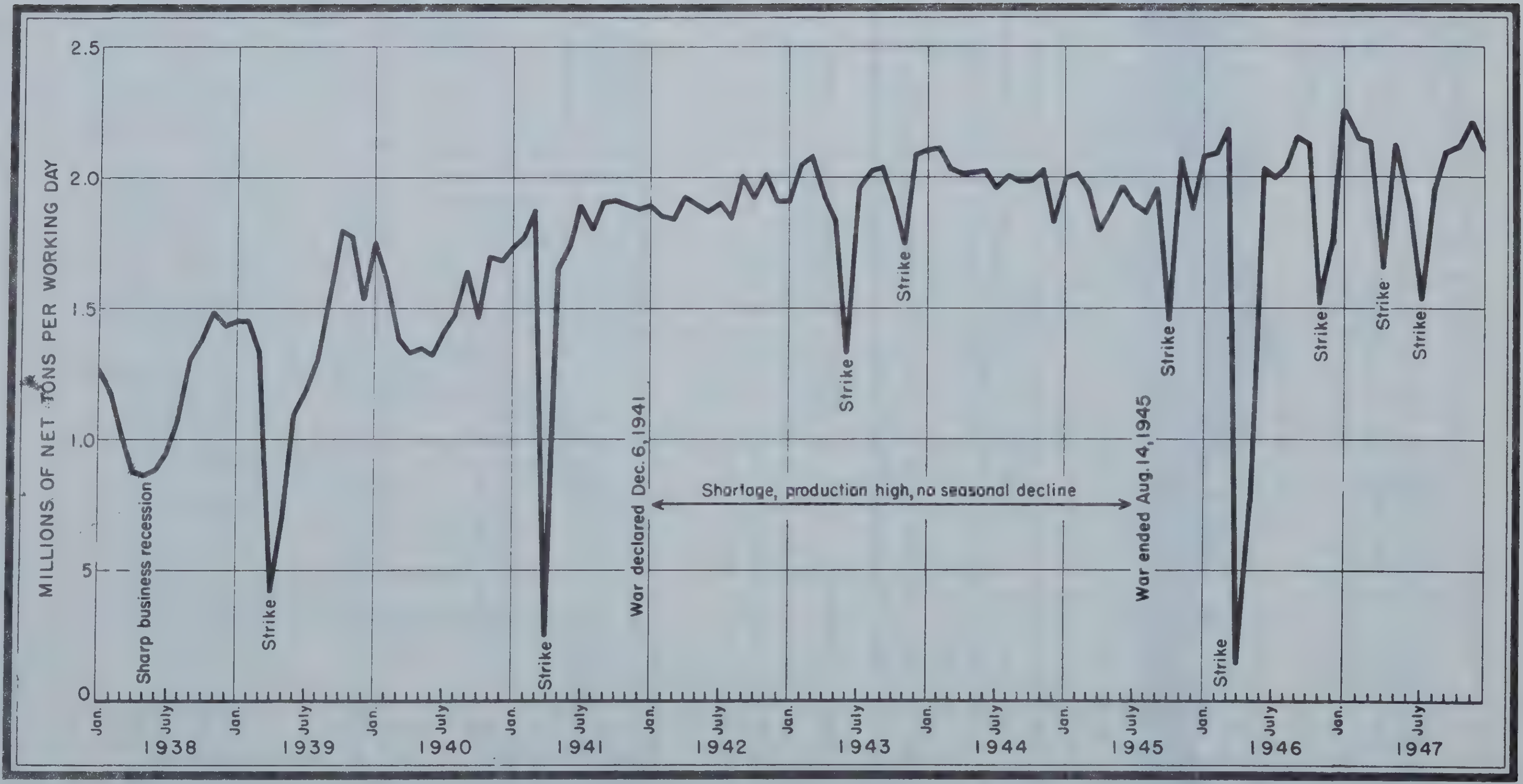

Figure 3. - Average production of bituminous coal and lignite in the United States per working day in each month, 1938-47.

SOURCES OF DATA

Data for 1947 are final and are based upon detailed annual reports of production and mine operation furnished by the producers. As in previous years, all but a small percentage of the output was covered by the reports submitted. For the remaining output not directly reported - consisting chiefly of small mines - it has been possible to obtain reasonably accurate data from the records of the State mine departments, which have statutory authority to require such reports or, in a few instances, from railroad carloadings.

In accordance with the practice followed by the Bureau of Mines in previous years, the statistics in this report relate to mines having an output of 1,000 tons a year or more and do not attempt to include many small mines producing less than 1,000 tons a year that sell their output by wagon or truck.

These data include, for convenience and historical comparison, the small output of anthracite and semianthracite produced outside Pennsylvania and the production of lignite.

SALIENT STATISTICS

TABLE 1. SALIENT STATISTICS OF THE BITUMINOUS-COAL AND LIGNITE INDUSTRY IN THE UNITED STATES, 1946-47

(All tonnage figures represent net tons)

	1946	1947	Change in 1947
			Percent
Production	533,922,068	630,623,722	+ 18.1
Consumption in the United States 1/	500,386,000	557,243,000	+ 11.4
Stocks at end of year:			
Industrial consumers and retail yards	47,157,000	52,161,000	+ 10.6
Stocks on upper Lake docks	5,579,829	5,626,219	+ .8
Imports and Exports: 2/			
Imports	434,680	290,141	- 33.3
Exports	41,198,994	68,666,963	+ 66.7
Price indicators (average per net ton):			Dollars
Average cost of railroad fuel purchased, f.o.b. mines 3/	$3.11	$3.64	+ .53
Average cost of coking coal at merchant coke ovens 4/	$6.48	$7.43	+ .95
Average retail price	$10.95	$12.99	+ 2.04
Average railroad freight charge per net ton 5/	$2.27	$2.49	+ .22
Average value f.o.b. mines 6/	$3.44	$4.16	+ .72
Underground loading machinery sold: 7/			Percent
Mobile loading machines (number)	490	485	- 1.0
Scrapers (number)	3	12	+ 300.0
Conveyors, including those equipped with duckbills (units)	838	846	+ 1.0
"Mother" conveyors (units)	183	200	+ 9.3
Surface stripping	112,963,717	139,395,011	+ 23.4
Mechanically loaded underground	245,340,768	298,157,281	+ 21.5
Mechanically cleaned	138,669,837	174,435,937	+ 25.8
Number of mines 8/	7,333	8,700	+ 18.6
Average number of days worked 8/	214	234	+ 9.3
Average number of men working daily 8/	396,434	419,182	+ 5.7
Production per man per day 8/	6.30	6.42	+ 1.9
Fuel efficiency indicators:			
Pounds of coal per kw.-hr. at electric power plants 9/	1.29	1.31	+ 1.6
Pounds per 1,000 gross ton-miles - railroads 10/	116	114	- 1.7

1/ Represents certain classes of consumers only.
2/ U. S. Department of Commerce.
3/ Interstate Commerce Commission (class I steam railways, including class I switching and terminal companies). Excludes freight charges.
4/ As reported by coke operators.
5/ Average receipts per net ton of revenue bituminous coal and lignite originated, as reported by the Interstate Commerce Commission.
6/ Average gross realization, selling cost not deducted.
7/ Young, W. H., and Anderson, R. L., Sales of Mechanical Loading and Cleaning Equipment: Coal Age, February 1948, pp. 87-89, and Mining Congress Journal, February 1948, pp. 58-60.
8/ Based upon reports of mine operators producing over 1,000 tons.
9/ Federal Power Commission.
10/ Interstate Commerce Commission; includes coal equivalent of fuel oil consumed.

PRODUCTION BY WEEKS AND MONTHS

TABLE 2. - BITUMINOUS-COAL AND LIGNITE PRODUCTION (FINAL FIGURES) IN THE UNITED STATES IN 1947, WITH ESTIMATES BY WEEKS

Week ended-	Production (net tons)	Number of working days	Average production per working day (net tons)	Week ended-	Production (net tons)	Number of working days	Average production per working day (net tons)
Jan. 4	1/ 6,959,000	1/ 3.1	2/ 2,286,000	July 5	2,012,000	5	402,000
Jan. 11	14,046,000	6	2,341,000	July 12	6,262,000	6	1,044,000
Jan. 18	13,547,000	6	2,258,000	July 19	12,391,000	6	2,065,000
Jan. 25	13,477,000	6	2,246,000	July 26	12,016,000	6	2,003,000
Feb. 1	14,099,000	6	2,350,000	Aug. 2	11,911,000	6	1,985,000
Feb. 8	12,778,000	6	2,130,000	Aug. 9	12,017,000	6	2,003,000
Feb. 15	12,802,000	6	2,134,000	Aug. 16	11,944,000	6	1,991,000
Feb. 22	13,557,000	6	2,260,000	Aug. 23	12,212,000	6	2,035,000
Mar. 1	13,122,000	6	2,187,000	Aug. 30	12,243,000	6	2,041,000
Mar. 8	13,039,000	6	2,173,000	Sept. 6	10,942,000	5	2,188,000
Mar. 15	13,648,000	6	2,275,000	Sept. 13	12,841,000	6	2,140,000
Mar. 22	13,159,000	6	2,193,000	Sept. 20	12,466,000	6	2,078,000
Mar. 29	12,411,000	6	2,069,000	Sept. 27	12,530,000	6	2,088,000
Apr. 5	4,093,000	5	819,000	Oct. 4	12,473,000	6	2,079,000
Apr. 12	7,309,000	6	1,218,000	Oct. 11	13,080,000	6	2,180,000
Apr. 19	13,077,000	6	2,180,000	Oct. 18	12,972,000	6	2,162,000
Apr. 26	13,063,000	6	2,177,000	Oct. 25	12,965,000	6	2,161,000
May 3	12,744,000	6	2,124,000	Nov. 1	13,178,000	6	2,196,000
May 10	13,295,000	6	2,216,000	Nov. 8	13,132,000	6	2,189,000
May 17	13,093,000	6	2,182,000	Nov. 15	12,925,000	5.8	2,228,000
May 24	13,005,000	6	2,168,000	Nov. 22	13,636,000	6	2,273,000
May 31	12,230,000	5.5	2,224,000	Nov. 29	12,287,000	5	2,457,000
June 7	13,593,000	6	2,266,000	Dec. 6	13,377,000	6	2,230,000
June 14	12,825,000	6	2,138,000	Dec. 13	13,652,000	6	2,275,000
June 21	13,082,000	6	2,180,000	Dec. 20	13,262,000	6	2,210,000
June 28	8,284,000	6	1,381,000	Dec. 27	8,565,000	5	1,713,000
				Jan. 3 '48	1/ 6,996,000	1/ 3	2/ 2,220,000
					630,624,000	306.4	2,058,000

1/ Figures represent output and number of working days in that part of week included in the calendar year shown. Total production for the week ended January 4, 1947, was 11,661,000 net tons; week ended January 3, 1948, 11,546,000 net tons.

2/ Average daily production for entire week and not for working days in calendar year shown.

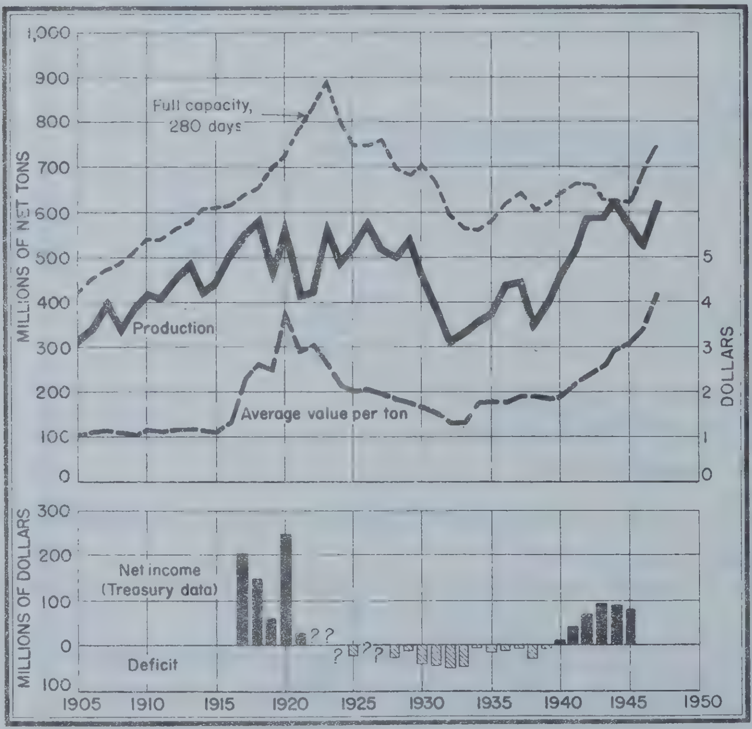

Figure 4. - Trends of bituminous-coal and lignite production, realization, mine capacity, and net income or deficit in the United States, 1905-47.

TABLE 3. – COAL PRODUCTION IN THE UNITED STATES, IN 1947, BY STATES (FINAL FIGURES), WITH ESTIMATES BY MONTHS, IN THOUSANDS OF NET TONS

(Totals for year are based on final complete returns from all operators known to have produced more than 1,000 tons a year. Apportionment of known yearly total among the twelve months is based upon best information available; in some States upon direct tonnage reports by operators to State mine departments; in most cases upon current records of railway carloadings and waterway shipments.)

State	January	February	March	April	May	June	July	August	September	October	November	December	Total
Alabama	1,730	1,637	1,721	1,231	1,861	1,406	1,007	1,596	1,592	1,872	1,645	1,750	19,048
Alaska	33	22	32	27	23	18	20	24	31	41	42	48	361
Arkansas	204	155	132	63	92	171	108	174	182	205	201	184	1,871
Colorado	826	682	641	339	362	412	221	391	517	590	616	761	6,358
Illinois	6,974	6,128	6,611	4,389	5,949	4,640	4,265	5,362	5,777	6,042	5,685	6,038	67,860
Indiana	2,563	2,366	2,563	1,619	2,302	1,623	1,624	2,004	2,176	2,272	2,186	2,151	25,449
Iowa	174	167	166	124	130	79	124	97	126	136	167	194	1,684
Kansas	268	253	250	168	209	208	154	222	222	262	249	280	2,745
Kentucky:													
Eastern	5,885	4,861	5,414	3,656	5,872	4,720	3,713	5,207	5,586	6,132	5,473	5,540	62,059
Western	1,965	1,657	2,182	1,734	1,864	1,748	1,648	1,676	1,723	1,855	1,928	2,202	22,182
Total Kentucky	7,850	6,518	7,596	5,390	7,736	6,468	5,361	6,883	7,309	7,987	7,401	7,742	84,241
Maryland	243	213	185	136	173	170	137	175	160	145	158	156	2,051
Missouri	413	390	385	259	322	320	237	344	344	405	385	432	4,236
Montana:													
Bituminous	404	287	275	189	233	144	175	246	264	306	298	318	3,139
Lignite	5	4	3	2	3	2	2	3	3	4	4	4	39
Total Montana	409	291	278	191	236	146	177	249	267	310	302	322	3,178
New Mexico	155	136	137	98	128	115	81	106	118	119	115	135	1,443
North Dakota (lignite)	304	252	230	158	136	134	142	126	227	363	342	346	2,760
Ohio	3,257	2,830	3,241	2,826	3,377	3,016	2,530	2,983	3,131	3,561	3,246	3,550	37,548
Oklahoma	346	265	287	239	239	217	258	292	290	324	315	349	3,421
Pennsylvania (bituminous)	13,827	12,606	12,836	9,803	13,399	11,778	10,216	12,270	12,380	13,769	11,968	12,227	147,079
South Dakota (lignite)	2	1	1	1	1	1	1	1	1	2	2	1	15
Tennessee	629	541	575	374	569	475	329	510	502	568	557	629	6,258
Texas (lignite)	6	6	7	6	4	4	3	4	4	5	6	6	61
Utah	786	780	763	521	662	589	414	530	539	531	589	725	7,429
Virginia	1,867	1,523	1,691	1,207	1,848	1,590	1,214	1,796	1,790	2,041	1,783	1,821	20,171
Washington	116	108	110	81	74	88	51	79	84	110	102	115	1,118
West Virginia	16,211	13,791	15,324	12,270	17,102	14,044	11,629	15,072	14,944	15,901	14,830	15,039	176,157
Wyoming	915	756	734	494	570	610	343	530	653	802	797	847	8,051
Other States 1/	5	3	3	1	2	1	1	2	3	3	3	4	31
Total bituminous coal and lignite	60,113	52,420	56,499	42,015	57,506	48,323	40,647	51,822	53,369	58,366	53,692	55,852	630,624
Pennsylvania anthracite 2/	5,172	4,254	4,984	4,293	4,564	4,624	4,098	5,011	5,158	5,524	4,629	4,879	57,190
Grand total	65,285	56,674	61,483	46,308	62,070	52,947	44,745	56,833	58,527	63,890	58,321	60,731	687,814

1/ Includes Arizona, Georgia and Michigan.
2/ Includes Sullivan County.

TABLE 4. - BITUMINOUS-COAL AND LIGNITE PRODUCTION IN THE UNITED STATES, IN 1947, BY DISTRICTS (FINAL FIGURES), WITH ESTIMATES BY MONTHS, IN THOUSANDS OF NET TONS

(Districts as defined in the Bituminous Coal Act of 1937, and modifications thereto. Exclusive of mines producing less than 1,000 tons a year)

(Totals for year are based on final complete returns from all operators known to have produced more than 1,000 tons during the year. Apportionment of known yearly total among the twelve months is based upon best information available; in some States upon direct tonnage reports from operators to State mine departments; in most cases upon current records of railroad carloadings and waterway shipments)

District	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1. Eastern Pennsylvania 1/	5,800	5,163	5,084	4,563	5,481	5,386	4,479	5,053	5,364	5,784	5,053	5,622	62,832
2. Western Pennsylvania	8,380	7,753	8,052	5,486	8,215	6,671	5,974	7,495	7,280	8,239	7,185	6,880	87,610
3. Northern West Virginia	4,469	3,895	4,653	4,441	4,950	4,424	4,017	4,128	4,203	4,413	4,475	4,747	52,815
4. Ohio	3,257	2,830	3,241	2,826	3,377	3,016	2,530	2,983	3,131	3,561	3,246	3,550	37,548
5. Michigan	2	1	1	1	1	1	1	1	1	1	1	2	14
6. Panhandle	423	369	440	420	469	418	380	389	397	418	423	449	4,995
7. Southern Numbered 1	5,932	4,978	5,335	3,808	6,076	4,777	3,737	5,519	5,397	5,798	5,199	5,226	61,782
8. Southern Numbered 2	13,535	11,281	12,362	8,660	13,691	11,024	8,598	12,348	12,629	13,791	12,322	12,367	142,608
9. West Kentucky	1,965	1,657	2,182	1,734	1,864	1,748	1,648	1,676	1,723	1,855	1,928	2,202	22,182
10. Illinois	6,974	6,128	6,611	4,389	5,949	4,640	4,265	5,362	5,777	6,042	5,685	6,038	67,860
11. Indiana	2,563	2,366	2,563	1,619	2,302	1,623	1,624	2,004	2,176	2,272	2,186	2,151	25,449
12. Iowa	174	167	166	124	130	79	124	97	126	136	167	194	1,684
13. Southeastern	1,854	1,734	1,821	1,299	1,942	1,483	1,060	1,694	1,685	1,986	1,758	1,872	20,188
14. Arkansas-Oklahoma	264	201	181	104	133	208	152	224	232	261	255	244	2,459
15. Southwestern (bituminous and lignite)	973	868	880	631	733	712	608	812	810	940	901	1,007	9,875
16. Northern Colorado	266	218	204	110	98	99	48	80	141	208	231	234	1,937
17. Southern Colorado 2/	690	578	552	311	372	409	241	400	475	482	481	640	5,631
18. New Mexico 3/	27	23	23	16	21	19	13	18	20	20	20	23	243
19. Wyoming 4/	915	756	734	494	570	610	343	530	653	802	797	847	8,051
20. Utah	786	780	763	521	662	589	414	530	539	531	589	725	7,429
21. North-South Dakota (lignite)	306	253	231	159	137	135	143	127	228	365	344	347	2,775
22. Montana (bituminous and lignite)	409	291	278	191	236	146	177	249	267	310	302	322	3,178
23. Washington 5/	149	130	142	108	97	106	71	103	115	151	144	163	1,479
Total 6/	60,113	52,420	56,499	42,015	57,506	48,323	40,647	51,822	53,369	58,366	53,692	55,852	630,624

1/Includes Maryland, and Grant, Mineral, and Tucker Counties, West Virginia.
2/Includes Colfax County, New Mexico.
3/Includes Arizona and California, but excludes Colfax County, New Mexico. No production was reported for California.
4/Includes Idaho. No production was reported for Idaho.
5/Includes Oregon.
6/For purposes of historical comparison and statistical convenience, figures include output of lignite and of anthracite and semianthracite outside of Pennsylvania.

AVERAGE VALUE

TABLE 5. - AVERAGE VALUE PER TON, F.O.B. MINES, OF BITUMINOUS COAL AND LIGNITE IN THE UNITED STATES, BY STATES, 1946-47 1/

State	1946			1947		
	Strip mines	Underground mines	Total all mines	Strip mines	Underground mines	Total all mines
Alabama	$4.85	$4.81	$4.81	$5.53	$5.47	$5.48
Alaska	4.67	6.96	6.42	5.36	7.46	7.07
Arizona	-	3.79	3.79	-	4.61	4.61
Arkansas	4.56	6.48	5.82	4.96	7.82	6.67
Colorado	3.78	4.05	4.04	4.30	4.53	4.53
Georgia	4.70	4.70	4.70	5.40	5.40	5.40
Illinois	2.47	2.65	2.61	3.13	3.16	3.15
Indiana	2.55	2.69	2.61	3.15	3.32	3.22
Iowa	3.20	3.85	3.68	3.23	4.28	3.82
Kansas	2.66	4.13	2.78	3.20	4.57	3.34
Kentucky	2.54	3.52	3.41	3.38	4.57	4.42
Maryland	3.66	4.32	4.14	3.83	5.19	4.80
Michigan	-	6.45	6.45	-	7.68	7.68
Missouri	2.64	4.12	2.79	3.20	4.54	3.33
Montana (bituminous and lignite)	1.00	3.23	1.76	1.16	3.60	2.05
New Mexico	-	4.14	4.14	-	4.52	4.52
North and South Dakota (lignite)	1.60	2.11	1.69	1.93	1.92	1.93
Ohio	2.63	3.28	2.99	3.08	3.86	3.50
Oklahoma	3.27	4.57	3.75	4.09	5.08	4.41
Oregon	-	4.40	4.40	-	-	-
Pennsylvania	3.25	3.80	3.66	3.70	4.42	4.23
Tennessee	3.95	3.83	3.84	4.82	4.76	4.77
Texas (lignite)	.83	-	.83	.98	-	.98
Utah	-	3.58	3.58	-	3.93	3.93
Virginia	3.47	3.85	3.84	5.02	4.82	4.83
Washington	5.09	5.51	5.47	5.12	6.17	5.99
West Virginia	3.28	3.70	3.65	3.98	4.55	4.48
Wyoming	2.29	3.11	3.00	2.67	3.50	3.37
Total	2.87	3.59	3.44	3.47	4.35	4.16

1/ Average gross realization, selling cost not deducted.

CONSUMPTION

TABLE 6. - CONSUMPTION OF BITUMINOUS COAL AND LIGNITE, BY CONSUMER CLASS, WITH RETAIL DELIVERIES IN THE UNITED STATES, 1938-47, IN THOUSANDS OF NET TONS

Year	Colliery fuel	Electric power utilities 1/	Bunker foreign trade 2/	Railroad (Class I) 3/	Coke		Steel and rolling mills	Cement mills 4/	Other indus-trials 5/	Retail dealer deliv-eries 5/	Total of classes shown
					Beehive	Ovens					
1938	2,493	38,245	1,352	73,921	1,360	45,266	8,412	4,483	94,034	68,520	338,086
1939	2,565	43,979	1,477	79,072	2,298	61,216	9,808	5,274	100,514	71,570	377,773
1940	2,443	50,973	1,426	85,130	4,803	76,583	10,040	5,633	108,026	87,700	432,757
1941	2,489	61,861	1,643	97,384	10,529	82,609	10,902	6,832	122,379	97,460	494,088
1942	2,708	65,636	1,585	115,410	12,876	87,974	10,434	7,570	133,271	104,750	542,214
1943	2,702	76,403	1,647	130,283	12,441	90,019	11,238	5,851	142,816	122,764	596,164
1944	2,712	78,887	1,559	132,049	10,858	94,438	10,734	3,789	131,898	124,906	591,830
1945	2,442	71,603	1,785	125,120	8,135	87,214	10,084	4,215	127,164	121,805	559,567
1946	1,951	68,743	1,381	110,166	7,167	76,121	8,603	7,009	118,659	100,586	500,386
1947	(6)	86,009	1,689	109,296	10,475	94,325	10,048	7,938	138,300	99,163	557,243

1/ Federal Power Commission. Represents bituminous coal and lignite consumed by public utility power plants in power generation, including a small quantity of coke amounting to approximately 100,000 tons annually.
2/ U. S. Bureau of Census.
3/ Association of American Railroads. Represents consumption of bituminous coal and lignite by class I railways for all uses, including locomotive, powerhouse, shop, and station fuel. The Interstate Commerce Commission reports that in 1947 consumption for all uses by class I line-haul railways, plus purchases for class II and class III railways, plus purchases by all switching terminal companies combined was 112,819,388 tons of bituminous coal and lignite.
4/ Includes a small amount of anthracite.
5/ Estimates based upon reports collected from a selected list of representative manufacturing plants and retail dealers.
6/ Included in "Other industrials."

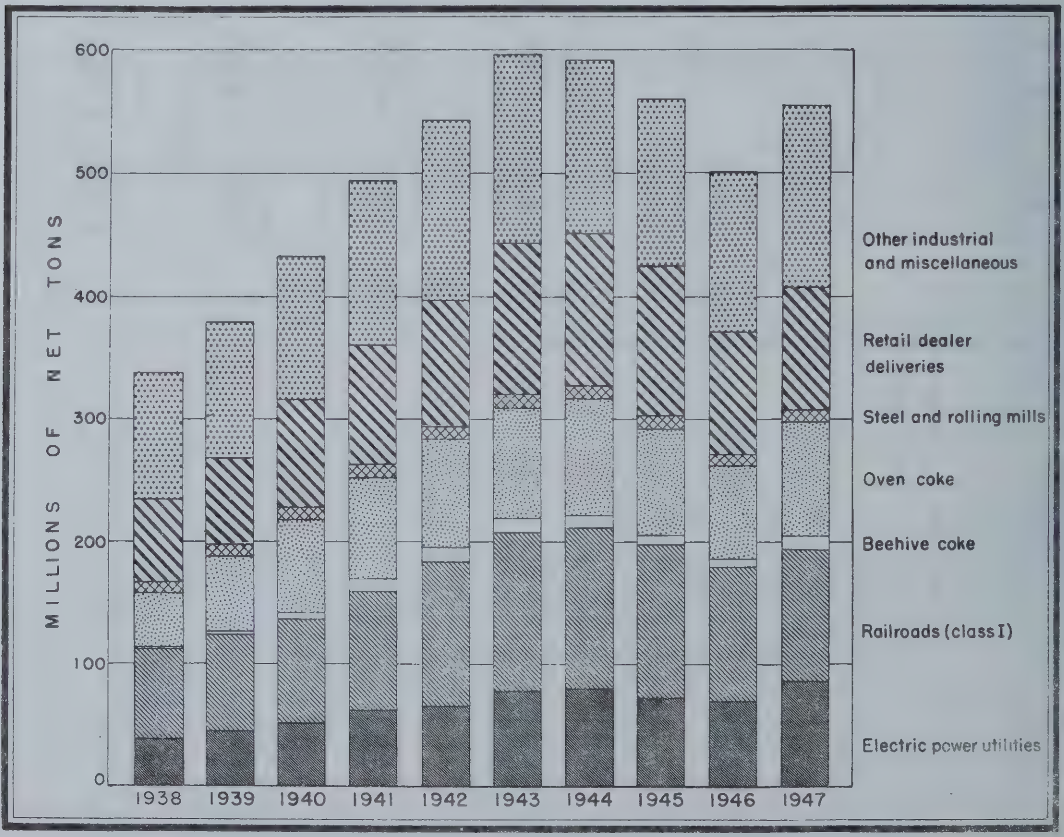

Figure 5. - Consumption of bituminous coal and lignite, by consumer class, with retail deliveries in the United States, 1938-47.

FUEL EFFICIENCY

TABLE 7. INDICATORS OF EFFECT OF FUEL ECONOMY ON CONSUMPTION OF COAL IN THE UNITED STATES PER UNIT OF PERFORMANCE SINCE THE WORLD WAR OF 1914-18

	Pounds	Reduction from base period (percent)
Steam railroads:		
Pounds per 1,000 gross ton-miles freight service:		
Average:		
1919-20	170	---
1946	116	31.8
1947	114	32.9
Pounds per passenger-train car-mile:		
Average:		
1919-20	18.5	---
1946	15.3	17.3
1947	15.9	14.1
Electric public-utility power plants:		
Pounds per kilowatt-hour:		
1919	3.20	---
1946	1.29	59.7
1947	1.31	59.1
Iron and Steel Plants:		
Pounds coking coal per net ton of pig: 1/		
1918	3,194	---
1946	2,706	15.3
1947	2,755	13.7
Coke manufacture: Savings of heat values through recovery of gas, tar, light oils, and breeze by extension of oven coke in place of beehive, 1913-14, expressed as percent of coal used for all coke in 1947 2/	---	18.6

1/ Includes only savings through higher yields of merchantable coke per ton of coal charged and lower consumption of coke per ton of iron and ferro-alloys. Excludes economies through recovery of coal chemical materials which are covered in next item.

2/ These coal chemical materials are used in part for boiler fuel, in part for metallurgical purposes, in part for domestic heating and cooking, and to a small extent for automotive fuel.

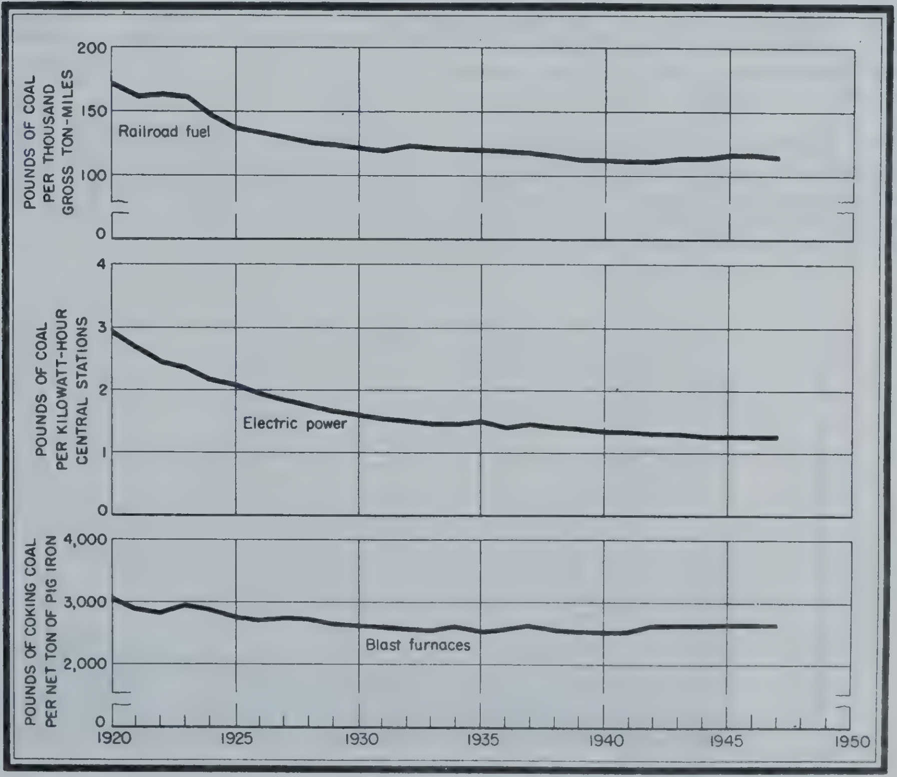

Figure 6. - Trends in fuel efficiency in the United States, 1920-47.

RELATIVE RATE OF GROWTH OF COAL, OIL, AND WATER POWER, 1889-1947

The total supply of available energy in the form of coal, oil, natural gas, and water power in 1947 was 36,015 trillion B.t.u. - a 11.5 percent increase over 1946.

The figures are expressed in British thermal units because some common denominator is necessary for such unlike quantities as tons of coal, barrels of oil, and cubic feet of gas. Table 8 summarizes the equivalent of each of the fuels in trillions of British thermal units. Water power is represented by the equivalent fuel required to perform the same work. The table covers the years since 1938. Details for 1889 and 1899 to 1938 are given in Minerals Yearbook, 1937, page 807, and Minerals Yearbook, 1940, page 789.

In converting water power to its equivalent of fuel required to perform the same work, the prevailing or average performance of all fuel-burning central electric stations for each year in question has been used. This average has declined from about 7.05 pounds of coal per kilowatt-hour in 1899 to 1.3 in 1947, which shows the influence of improving fuel efficiency. The prevailing fuel equivalent closely approximates the quantity of fuel that would have been needed in any one year to generate the same power in a steam-electric station. It should be noted, however, that the ultimate use of the water power generated often displaces fuel burned much less efficiently than in central stations and that in any instance no other important branch of fuel consumption has made advances in fuel efficiency approaching that of the central stations. As these tables attempt to determine the total energy from all fuels and from water power, the ideal factor for converting water power into fuel equivalent would be the average efficiency of all forms of fuel consumption in each year. No basis for determining such an all-embracing average exists at present, but enough is known to make certain that it would show much less reduction from 1899 to 1947 than do the central stations. The conversion of water power on the basis of a constant fuel equivalent of 4.02 pounds of coal per kilowatt-hour, as in earlier issues of these tables, has been discontinued.

As in earlier issues of these tables, the figures for oil and natural gas represent the entire production of crude petroleum and of gas. Most of this production does not come into direct competition with coal. Much of the supply of both oil and gas is used in regions of the country, such as California and portions of the Southwest, where coal is available only at unusually high cost because of heavy transport charges. Nearly half of the natural gas is used in the field for drilling or operating oil and gas wells and pipe lines or for the manufacture of carbon black. More than half the oil is used in the form of gasoline, kerosine, and lubricants, for which purposes coal cannot well compete, except at very much higher levels of oil prices. Even these refined products, however, involve a certain measure of indirect competition with coal, for the energy market of the country is becoming more fluid and competitive, and a demand that cannot be met by one source of supply tends to fall back on the others.

The subject of interfuel competition is exceedingly complex, and an elaborate analysis and the accumulation of data not now available would be required to determine even approximately how much of any one fuel actually has been displaced either by other fuels or by water power. The present tables do not permit determination of such displacement; their purpose is rather to measure the long-time trends in the total demand for energy.

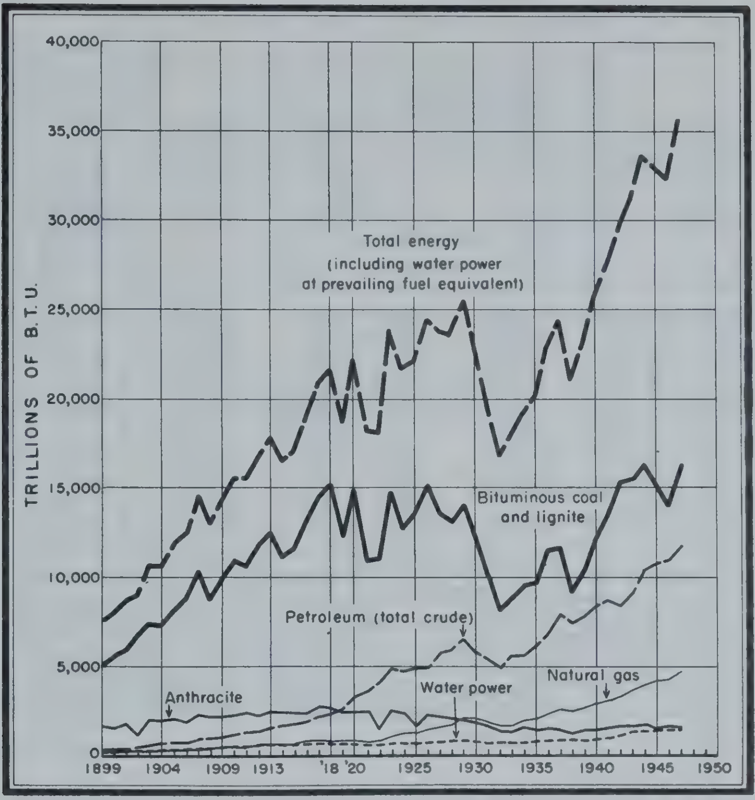

Figure 7. - Annual supply of energy from mineral fuels and water power in the United States, 1899-1947.

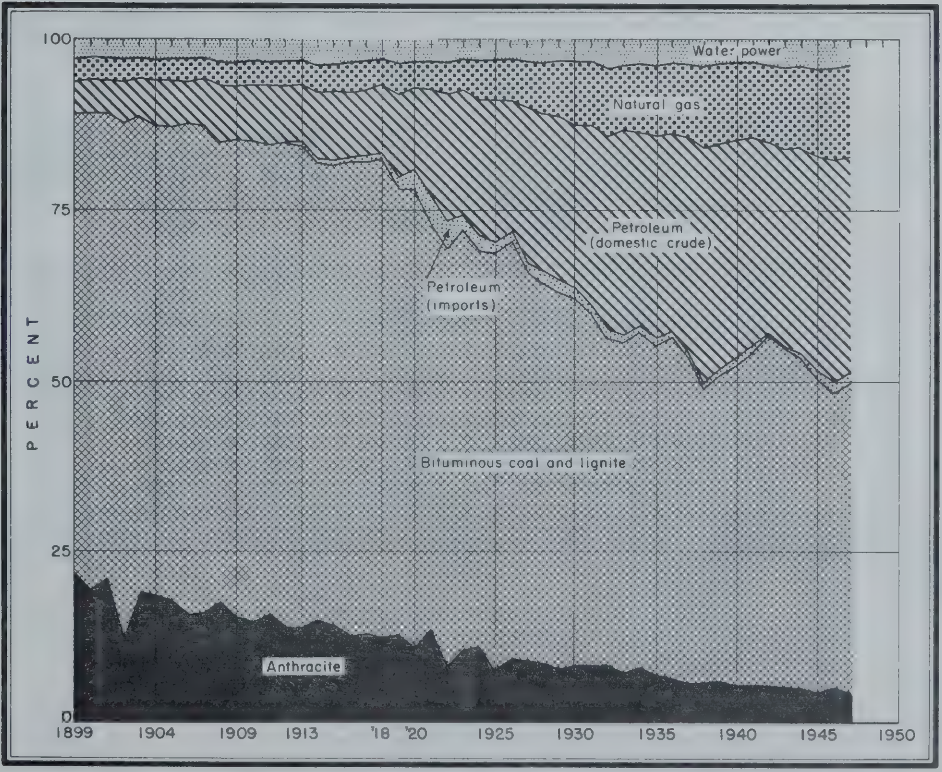

Figure 8. - Percentage of total B.t.u. equivalent contributed by the several mineral fuels and water power in the United States, 1899-1947.

TABLE 8. - ANNUAL SUPPLY OF ENERGY FROM MINERAL FUELS AND WATER POWER IN THE UNITED STATES, 1938-47, 1/ IN TRILLIONS OF B.T.U. 2/

Year	Pennsylvania anthracite	Bituminous coal and lignite	Total coal	Petroleum (total crude, including that refined)		Natural gas (total production)	Total petroleum and natural gas	Total mineral fuels	Water power 3/	Grand total energy
				Domestic production	Imports					
1938	1,255	9,132	10,387	7,286	158	2,468	9,912	20,299	866	21,165
1939	1,400	10,345	11,745	7,590	199	2,663	10,452	22,197	838	23,035
1940	1,400	12,072	13,472	8,119	256	2,860	11,235	24,707	880	25,587
1941	1,533	13,471	15,004	8,413	304	3,024	11,741	26,745	934	27,679
1942	1,641	15,267	16,908	8,320	74	3,282	11,676	28,584	1,136	29,720
1943	1,650	15,463	17,113	9,034	83	3,671	12,788	29,901	1,304	31,205
1944	1,733	16,233	17,966	10,067	269	3,989	14,325	32,291	1,344	33,635
1945	1,494	15,134	16,628	10,282	444	4,213	14,939	31,567	1,442	33,009
1946 4/.......	1,646	13,989	15,635	10,404	535	4,333	15,272	30,907	1,406	32,313
1947 4/.......	1,556	16,522	18,078	11,137	596	4,778	16,511	34,589	1,426	36,015

1/Comparable data for earlier years in Minerals Yearbook, 1937, p. 807 and Minerals Yearbook, 1940, p. 789.

2/The unit heat values employed are: Anthracite, 13,600 B.t.u. per pound; bituminous coal and lignite, 13,100 B.t.u. per pound; petroleum 6,000,000 B.t.u. per barrel; natural gas, 1,075 B.t.u. per cubic foot. Water power includes installations owned by manufacturing plants and mines, as well as Government and privately-owned public utilities. The fuel equivalent of water power is calculated from the kilowatt-hours of power produced wherever available, as it is true of all public-utility plants since 1919. Otherwise, the fuel equivalent is calculated from the reported horsepower of installed water wheels, assuming a capacity factor of 20 percent for manufacturers and mines and of 40 percent for public utilities.

3/Fuel equivalent calculated by assuming the average-central station practice for each of the years for which data are available.

4/Subject to revision.

TABLE 9. - INDEX NUMBERS FOR RELATIVE RATE OF GROWTH OF COAL, OIL, AND WATER POWER IN THE UNITED STATES, 1938-47 1/

(The figures are expressed as percentage of the 1918 rate)

Year	Pennsylvania anthracite	Bituminous coal and lignite	Total coal	Petroleum (total crude)		Natural gas (total production)	Total petroleum and natural gas	Total mineral fuels	Water power 2/	Grand total
				Domestic production	Imports					
1938	47	60	58	341	70	318	316	97	124	98
1939	52	68	66	355	88	344	333	106	120	106
1940	52	80	75	380	113	369	358	118	126	118
1941	57	89	84	394	135	390	374	127	133	128
1942	61	101	95	390	33	423	372	136	162	137
1943	61	102	96	423	37	474	408	142	186	144
1944	64	107	101	471	119	515	457	154	192	155
1945	56	100	93	481	196	544	476	150	206	152
1946 3/.......	61	92	88	487	237	559	487	147	201	149
1947 3/.......	58	109	101	521	264	617	526	165	203	166

1/Comparable data for earlier years in Minerals Yearbook, 1937, p. 809 and Minerals Yearbook, 1940, p. 789.

2/At prevailing central station equivalent.

3/Subject to revision.

TABLE 10. PERCENTAGE OF TOTAL B.T.U. EQUIVALENT CONTRIBUTED BY THE SEVERAL MINERAL FUELS AND WATER POWER IN THE UNITED STATES, 1938-47 1/

Year	Pennsylvania anthracite	Bituminous coal and lignite	Total coal	Petroleum (total crude)		Natural gas (total production)	Total petroleum and natural gas	Total mineral fuels	Water power, fuel equivalent	Grand total including water power
				Domestic production	Imports					
1938 ...	5.9	43.2	49.1	34.4	.7	11.7	46.8	95.9	4.1	100.0
1939 ...	6.1	44.9	51.0	32.9	.9	11.6	45.4	96.4	3.6	100.0
1940 ...	5.5	47.2	52.7	31.7	1.0	11.2	43.9	96.6	3.4	100.0
1941 ...	5.5	48.7	54.2	30.4	1.1	10.9	42.4	96.6	3.4	100.0
1942 ...	5.5	51.4	56.9	28.0	.2	11.1	39.3	96.2	3.8	100.0
1943 ...	5.3	49.5	54.8	28.9	.3	11.8	41.0	95.8	4.2	100.0
1944 ...	5.1	48.3	53.4	29.9	.8	11.9	42.6	96.0	4.0	100.0
1945 ...	4.5	45.9	50.4	31.1	1.3	12.8	45.2	95.6	4.4	100.0
1946 2/.	5.1	43.3	48.4	32.2	1.7	13.4	47.3	95.7	4.3	100.0
1947 2/.	4.3	45.9	50.2	30.9	1.6	13.3	45.8	96.0	4.0	100.0

1/ Percentages based upon figures in table 8. Comparable data for earlier years in Minerals Yearbook, 1937, p. 810 and Minerals Yearbook, 1940, p. 790.

2/ Subject to revision.

STOCKS HELD BY CONSUMERS

TABLE 11. - STOCKS OF BITUMINOUS COAL AND LIGNITE IN HANDS OF COMMERCIAL CONSUMERS AND IN RETAIL DEALERS' YARDS IN THE UNITED STATES, 1946-47

Date	Total stocks (net tons)	Days' supply at current rate of consumption on date of stock taking							
		Coke ovens	Steel plants	Other indus- trials	Electric utilities	Retail yards	Rail- roads	Cement mills	Total
1946									
January 1	45,665,000	20	20	32	78	8	25	43	27
February 1	46,528,000	33	35	32	78	5	27	39	28
March 1	51,158,000	48	29	37	84	6	32	39	31
April 1	58,531,000	36	38	48	95	12	39	42	42
May 1	38,741,000	22	24	44	70	18	27	24	36
June 1	31,643,000	22	26	41	67	15	24	21	34
July 1	37,777,000	17	32	43	68	17	27	25	33
August 1	43,611,000	16	30	54	68	15	27	29	34
September 1	47,990,000	21	34	57	68	14	28	35	36
October 1	52,367,000	23	35	58	70	12	30	41	37
November 1	54,924,000	26	32	55	72	11	30	47	36
December 1	52,429,000	27	33	52	68	9	26	46	35
December 31	47,157,000	24	28	45	60	10	23	41	32
1947									
January 1	47,157,000	24	28	45	60	10	23	41	32
February 1	49,688,000	23	30	45	57	8	24	41	29
March 1	47,867,000	26	31	39	57	5	23	41	27
April 1	49,033,000	29	38	42	63	6	25	44	31
May 1	42,419,000	21	37	33	62	10	25	42	30
June 1	50,218,000	25	45	51	73	15	28	59	38
July 1	49,778,000	28	50	39	77	16	30	52	37
August 1	45,366,000	19	47	47	71	19	26	46	36
September 1	47,157,000	21	48	55	65	12	24	41	37
October 1	48,370,000	24	44	44	64	9	22	41	33
November 1	50,276,000	27	40	39	64	9	22	46	32
December 1	50,455,000	30	34	44	65	8	20	45	33
December 31	52,161,000	34	32	52	62	6	22	46	33

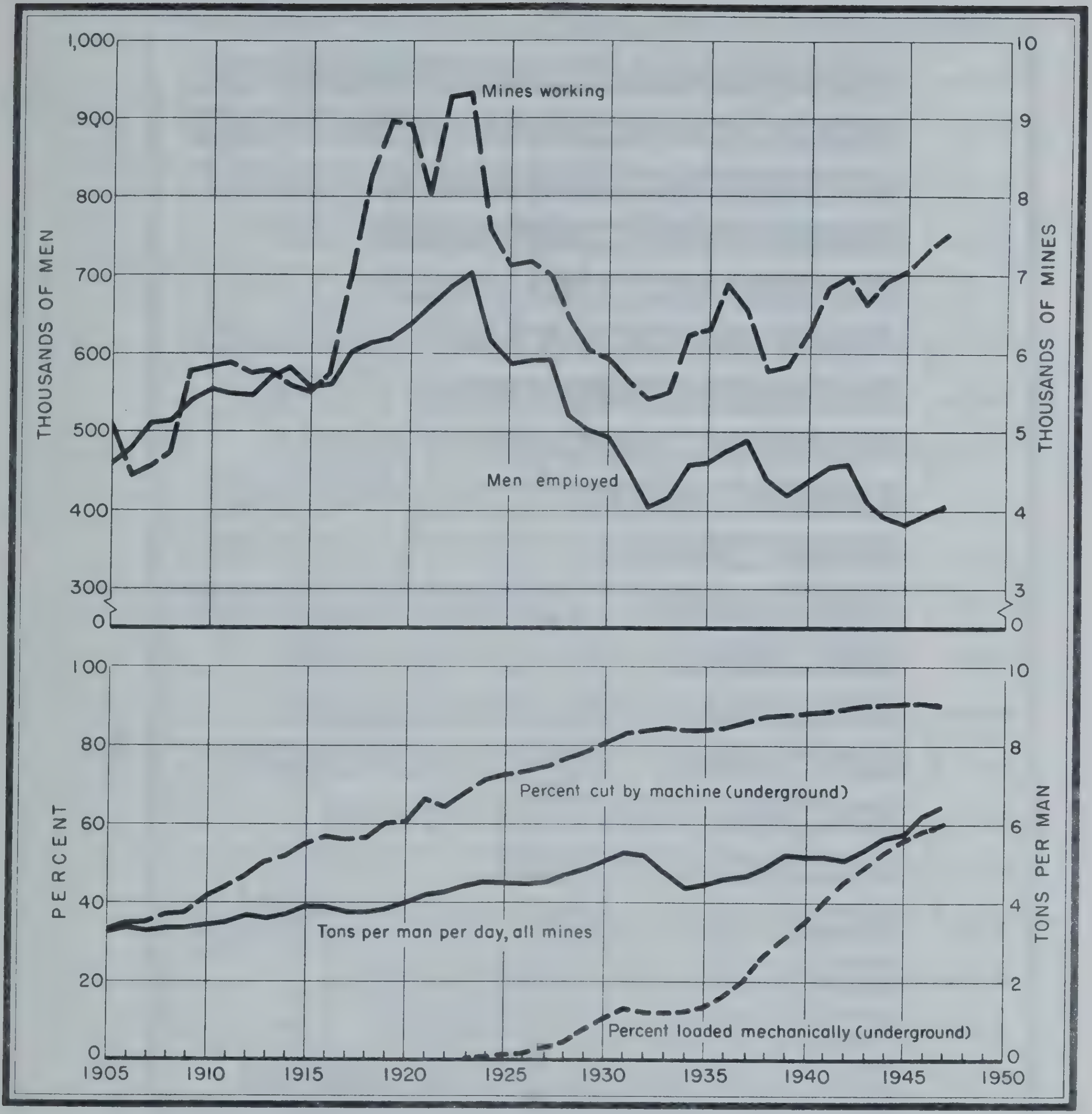

Figure 9. - Trends of employment, mechanization, and output per man at bituminous-coal and lignite mines in the United States, 1905-47.

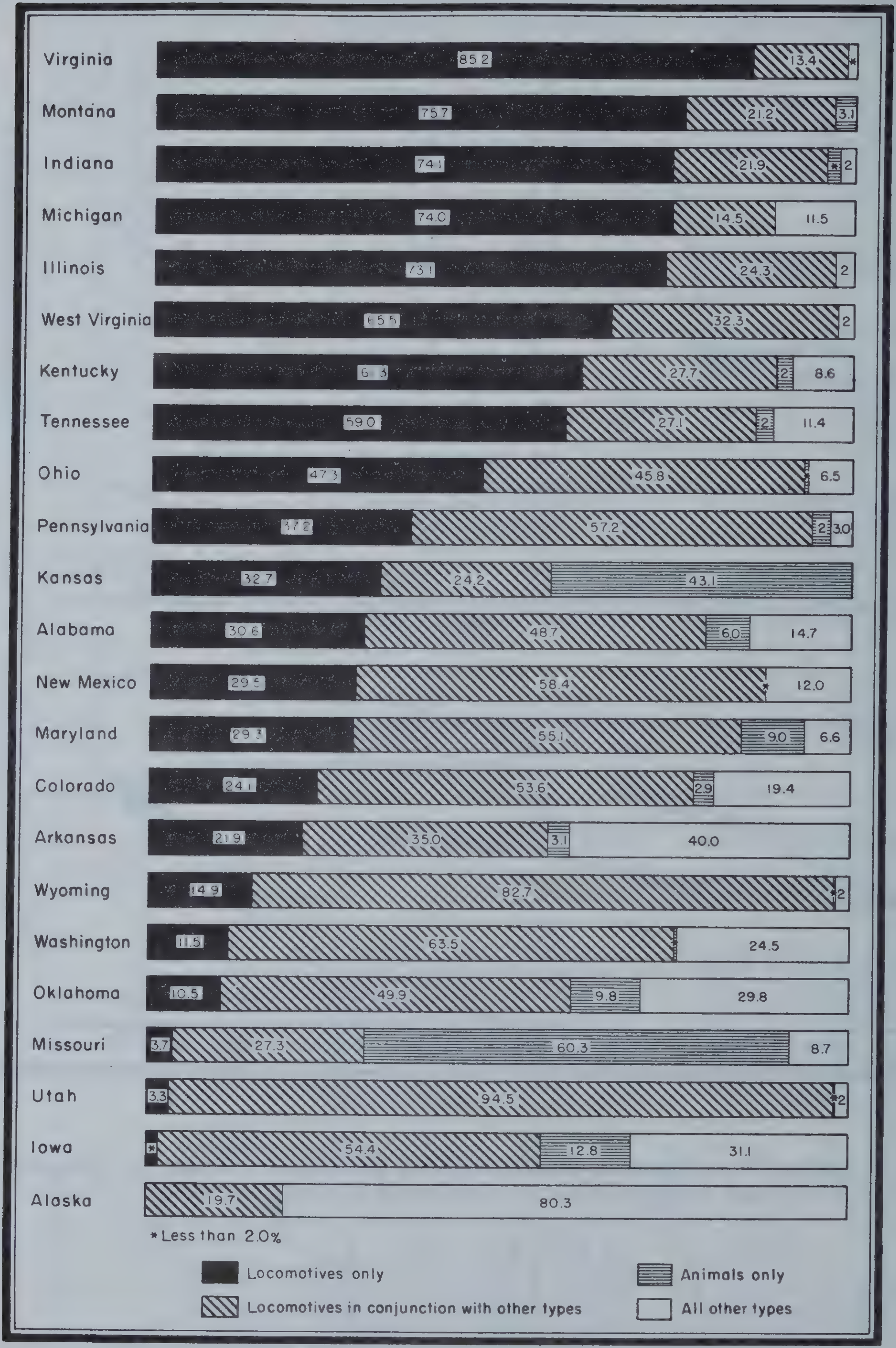

Figure 10. - Percentage of underground outout of bituminous coal handled by various types of haulage equipment, by States, in 1944.

TABLE 12. - SALIENT TRENDS IN BITUMINOUS-COAL AND LIGNITE-MINING INDUSTRY IN THE UNITED STATES, 1940-47

	1940	1941	1942	1943	1944	1945	1946	1947
Production:								
Loaded at mine for shipment by rail..........net tons..	380,387,674	425,184,319	482,814,042	495,863,581	527,135,489	490,471,988	450,615,524	527,281,632
Loaded at mine for shipment by water..........do.....	29,493,058	30,240,489	34,018,025	30,188,093	31,518,334	27,547,679	24,641,533	29,802,779
Shipped by truck or wagon..........do.....	35,540,476	40,055,638	45,154,432	42,432,667	40,123,023	41,477,428	42,730,884	55,859,262
Taken by locomotive tenders at tipple..........do.....	939,058	1,099,582	920,213	779,154	807,679	694,555	731,748	17,680,049
Shipped by conveyor or tram to point of consumption..........do.....	5,887,994	6,067,697	7,121,116	7,476,717	7,206,392	6,416,327	5,700,870	
Used by mine employees..........do.....	2,035,201	1,872,026	2,180,077	2,549,775	2,545,343	2,660,039	2,464,300	
Used at mines for power and heat..........do.....	2,442,989	2,488,950	2,708,312	2,701,828	2,713,073	2,442,398	1,950,645	
Made into beehive coke at mines..........do.....	4,045,050	7,140,544	7,776,720	8,185,254	7,526,907	5,906,913	5,086,564	
Total production..........do.....	460,771,500	514,149,245	582,692,937	590,177,069	619,576,240	577,617,327	533,922,068	630,623,722
Number of active mines of commercial size:								
Class 1 (200,000 tons or more)..........number...	636	730	811	855	828	753	706	801
Class 2 (100,000 to 200,000 tons)..........do.....	432	437	484	464	559	591	560	618
Class 3 (50,000 to 100,000 tons)..........do.....	371	402	445	481	540	629	637	704
Class 4 (10,000 to 50,000 tons)..........do.....	1,157	1,305	1,492	1,544	1,776	1,920	2,016	2,665
Class 5 (1,000 to 10,000 tons)..........do.....	3,728	3,948	3,740	3,276	3,225	3,140	3,414	3,912
Total number over 1,000 tons..........do.....	6,324	6,822	6,972	6,620	6,928	7,033	7,333	8,700
Average number of men employed at mines active:								
Underground..........men.....	365,013	376,765	374,654	326,763	301,461	290,001	296,030	311,369
Surface:								
In strip pits..........do.....	8,983	10,861	12,893	16,643	21,035	23,261	25,408	29,783
All others..........do.....	65,079	69,355	74,444	72,601	70,851	69,838	74,996	78,030
Total..........do.....	439,075	456,981	461,991	416,007	393,347	383,100	396,434	419,182
Average number of days mines operated..........days....	202	216	246	264	278	261	214	234
Capacity of active mines with existing labor force:								
Per year of 308 days..........net tons..	703,000,000	733,000,000	730,000,000	689,000,000	686,000,000	682,000,000	768,000,000	830,000,000
Per year of 280 days..........do.....	639,000,000	666,000,000	663,000,000	626,000,000	624,000,000	620,000,000	699,000,000	755,000,000
Per year of 261 days..........do.....	595,000,000	621,000,000	618,000,000	583,000,000	582,000,000	578,000,000	651,000,000	703,000,000
Output per man per day..........do.....	5.19	5.20	5.12	5.38	5.67	5.78	6.30	6.42
Output per man per year..........do.....	1,049	1,125	1,261	1,419	1,575	1,508	1,347	1,504
Underground output cut by machine..........do.....	369,227,277	408,510,296	462,344,719	461,051,743	469,458,349	424,726,432	382,133,540	442,101,535
Percent of underground output cut by machine..........percent...	88.4	89.0	89.7	90.3	90.5	90.8	90.8	90.0
Underground output mechanically loaded..........net tons..	147,870,252	186,667,250	232,902,920	249,805,214	274,189,132	262,512,729	245,340,768	298,157,281
Percent of underground output mechanically loaded..........percent...	35.4	40.7	45.2	48.9	52.9	56.1	58.4	60.7
Quantity mined by stripping..........net tons..	43,167,336	55,071,609	67,202,663	79,685,175	100,898,376	109,986,865	112,963,717	139,395,011
Percent mined by stripping..........percent...	9.4	10.7	11.5	13.5	16.3	19.0	21.1	22.1
Quantity cleaned by wet or pneumatic process 1/..........net tons..	102,269,753	117,539,522	142,187,346	145,575,849	158,727,129	147,885,936	138,669,837	174,435,937
Percent cleaned by wet or pneumatic process 1/..........percent...	22.2	22.9	24.4	24.7	25.6	25.6	26.0	27.7

1/ Includes central washeries operated by consumers.

TABLE 13. - GROWTH OF THE BITUMINOUS-COAL AND LIGNITE-MINING INDUSTRY IN THE UNITED STATES, 1890-1947

Year	Production (net tons)	Value		Men employed	Number of mines	Calculated capacity (millions of net tons)—		
		Total 1/	Average per ton 1/			At 308 days	At 280 days	At 261 days
1890	111,302,322	$ 110,420,801	$ 0.99	192,204	(2)	152	137	129
1891	117,901,238	117,188,400	.99	205,803	(2)	163	148	138
1892	126,856,567	125,124,381	.99	212,893	(2)	178	162	151
1893	128,385,231	122,751,618	.96	230,365	(2)	194	174	164
1894	118,820,405	107,653,501	.91	244,603	(2)	214	196	181
1895	135,118,193	115,779,771	.86	239,962	2,555	215	196	182
1896	137,640,276	114,891,515	.83	244,171	2,599	221	202	187
1897	147,617,519	119,595,224	.81	247,817	2,454	232	213	197
1898	166,593,623	132,608,713	.80	255,717	2,862	243	221	206
1899	193,323,187	167,952,104	.87	271,027	3,245	254	230	216
1900	212,316,112	220,930,313	1.04	304,375	(2)	279	255	237
1901	225,828,149	236,422,049	1.05	340,235	(2)	309	281	262
1902	260,216,844	290,858,483	1.12	370,056	(2)	348	316	295
1903	282,749,348	351,687,933	1.24	415,777	(2)	387	350	328
1904	278,659,689	305,397,001	1.10	437,832	4,650	425	386	360
1905	315,062,785	334,658,294	1.06	460,629	5,060	460	417	390
1906	342,874,867	381,162,115	1.11	478,425	4,430	496	451	420
1907	394,759,112	451,214,842	1.14	513,258	4,550	520	473	440
1908	332,573,944	374,135,268	1.12	516,264	4,730	531	482	450
1909	379,744,257	405,486,777	1.07	543,152	5,775	560	510	474
1910	417,111,142	469,281,719	1.12	555,533	5,818	592	538	502
1911	405,907,059	451,375,819	1.11	549,775	5,887	593	538	502
1912	450,104,982	517,983,445	1.15	548,632	5,747	622	566	527
1913	478,435,297	565,234,952	1.18	571,882	5,776	635	577	538
1914	422,703,970	493,309,244	1.17	583,506	5,592	668	608	566
1915	442,624,426	502,037,688	1.13	557,456	5,502	672	610	569
1916	502,519,682	665,116,077	1.32	561,102	5,726	673	613	570
1917	551,790,563	1,249,272,837	2.26	603,143	6,939	699	636	593
1918	579,385,820	1,491,809,940	2.58	615,305	8,319	717	650	607
1919	465,860,058	1,160,616,013	2.49	621,998	8,994	736	669	624
1920	568,666,683	2,129,933,000	3.75	639,547	8,921	796	725	675
1921	415,921,950	1,199,983,600	2.89	663,754	8,038	860	781	729
1922	422,268,099	1,274,820,000	3.02	687,958	9,299	916	832	776
1923	564,564,662	1,514,621,000	2.68	704,793	9,331	970	885	823
1924	483,686,538	1,062,626,000	2.20	619,604	7,586	871	792	738
1925	520,052,741	1,060,402,000	2.04	588,493	7,144	822	748	696
1926	573,366,985	1,183,412,000	2.06	593,647	7,177	821	747	696
1927	517,763,352	1,029,657,000	1.99	593,918	7,011	835	759	708
1928	500,744,970	933,774,000	1.86	522,150	6,450	760	691	644
1929	534,988,593	952,781,000	1.78	502,993	6,057	752	679	638
1930	467,526,299	795,483,000	1.70	493,202	5,891	770	700	653
1931	382,089,396	588,895,000	1.54	450,213	5,642	736	669	623
1932	309,709,872	406,677,000	1.31	406,380	5,427	653	594	554
1933	333,630,533	445,788,000	1.34	418,703	5,555	615	559	521
1934	359,368,022	628,383,000	1.75	458,011	6,258	622	565	527
1935	372,373,122	658,063,000	1.77	462,403	6,315	640	582	543
1936	439,087,903	770,955,000	1.76	477,204	6,875	680	618	576
1937	445,531,449	864,042,000	1.94	491,864	6,548	710	646	601
1938	348,544,764	678,653,000	1.95	441,333	5,777	663	602	562
1939	394,855,325	728,348,366	1.84	421,788	5,820	683	621	579
1940	460,771,500	879,327,227	1.91	439,075	6,324	703	639	595
1941	514,149,245	1,125,362,836	2.19	456,981	6,822	733	666	621
1942	582,692,937	1,373,990,608	2.36	461,991	6,972	730	663	618
1943	590,177,069	1,584,644,477	2.69	416,007	6,620	689	626	583
1944	619,576,240	1,810,900,542	2.92	393,347	6,928	686	624	582
1945	577,617,327	1,768,204,320	3.06	383,100	7,033	682	620	578
1946	533,922,068	1,835,539,476	3.44	396,434	7,333	768	699	651
1947	630,623,722	2,622,634,946	4.16	419,182	8,700	830	755	703

1/ Figures on value and value per ton for the years 1890 to 1936, inclusive, and 1939, exclude selling expense. Figures for other years include selling expense.

2/ Data not available.

TABLE 13. - GROWTH OF THE BITUMINOUS-COAL AND LIGNITE-MINING INDUSTRY IN THE UNITED STATES, 1890-1947 - Continued

Year	Average number of days worked	Average number of days lost on account of strikes—		Net tons per man—		Percent of underground production—		Percent of total production—	
		Per man employed	Per man on strike	Per day	Per year	Cut by machines 1/	Mechanically loaded	Mechanically cleaned 2/	Mined by stripping
1890	226	(3)	(3)	2.56	579	(3)	(3)	(3)	(3)
1891	223	(3)	(3)	2.57	573	5.3	(3)	(3)	(3)
1892	219	(3)	(3)	2.72	596	(3)	(3)	(3)	(3)
1893	204	(3)	(3)	2.73	557	(3)	(3)	(3)	(3)
1894	171	(3)	(3)	2.84	486	(3)	(3)	(3)	(3)
1895	194	(3)	(3)	2.90	563	(3)	(3)	(3)	(3)
1896	192	(3)	(3)	2.94	564	11.9	(3)	(3)	(3)
1897	196	(3)	(3)	3.04	596	15.3	(3)	(3)	(3)
1898	211	(3)	(3)	3.09	651	19.5	(3)	(3)	(3)
1899	234	8	46	3.05	713	22.7	(3)	(3)	(3)
1900	234	5	43	2.98	697	24.9	(3)	(3)	(3)
1901	225	2	35	2.94	664	25.6	(3)	(3)	(3)
1902	230	7	44	3.06	703	26.8	(3)	(3)	(3)
1903	225	3	28	3.02	680	27.6	(3)	(3)	(3)
1904	202	8	44	3.15	637	28.2	(3)	(3)	(3)
1905	211	2	23	3.24	684	32.8	(3)	(3)	(3)
1906	213	28	63	3.36	717	34.7	(3)	2.7	(3)
1907	234	1	14	3.29	769	35.1	(3)	2.9	(3)
1908	193	11	38	3.34	644	37.0	(3)	3.6	(3)
1909	209	1	29	3.34	699	37.5	(3)	3.8	(3)
1910	217	35	89	3.46	751	41.7	(3)	3.8	(3)
1911	211	2	27	3.50	738	43.9	(3)	(3)	(3)
1912	223	10	35	3.68	820	46.8	(3)	3.9	(3)
1913	232	4	36	3.61	837	50.7	(3)	4.6	(3)
1914	195	19	80	3.71	724	51.8	(3)	4.8	0.3
1915	203	4	61	3.91	794	55.3	(3)	4.7	.6
1916	230	4	26	3.90	896	56.9	(3)	4.6	.8
1917	243	4	17	3.77	915	56.1	(3)	4.6	1.0
1918	249	1	7	3.78	942	56.7	(3)	3.8	1.4
1919	195	25	37	3.84	749	60.0	(3)	3.6	1.2
1920	220	6	22	4.00	881	60.7	(3)	3.3	1.5
1921	149	3	23	4.20	627	66.4	(3)	3.4	1.2
1922	142	78	117	4.28	609	64.8	(3)	(3)	2.4
1923	179	2	20	4.47	801	68.3	0.3	3.8	2.1
1924	171	7	73	4.56	781	71.5	.7	(3)	2.8
1925	195	2	30	4.52	884	72.9	1.2	(3)	3.2
1926	215	1	24	4.50	966	73.8	1.8	(3)	3.0
1927	191	45	153	4.55	872	74.9	3.3	5.3	3.6
1928	203	8	83	4.73	959	76.9	4.5	5.7	4.0
1929	219	(4)	11	4.85	1,064	78.4	7.4	6.9	3.8
1930	187	2	43	5.06	948	81.0	10.5	8.3	4.3
1931	160	3	35	5.30	849	83.2	13.1	9.5	5.0
1932	146	19	120	5.22	762	84.1	12.3	9.8	6.3
1933	167	9	30	4.78	797	84.7	12.0	10.4	5.5
1934	178	3	15	4.40	785	84.1	12.2	11.1	5.8
1935	179	(3)	(3)	4.50	805	84.2	13.5	12.2	6.4
1936	199	2	21	4.62	920	84.8	16.3	13.9	6.4
1937	193	(3)	(3)	4.69	906	(3)	20.2	14.6	7.1
1938	162	1	13	4.89	790	87.5	26.7	18.2	8.7
1939	178	25	36	5.25	936	87.9	31.0	20.1	9.6
1940	202	1	8	5.19	1,049	88.4	35.4	22.2	9.4
1941	216	20	27	5.20	1,125	89.0	40.7	22.9	10.7
1942	246	1	7	5.12	1,261	89.7	45.2	24.4	11.5
1943	264	(3)	(3)	5.38	1,419	90.3	48.9	24.7	13.5
1944	278	(3)	(3)	5.67	1,575	90.5	52.9	25.6	16.3
1945	261	(3)	(3)	5.78	1,508	90.8	56.1	25.6	19.0
1946	214	(3)	(3)	6.30	1,347	90.8	58.4	26.0	21.1
1947	234	(3)	(3)	6.42	1,504	90.0	60.7	27.7	22.1

1/ Percentages for the years 1890 to 1913, inclusive, are of total production, as a separation of strip mine and underground production is not available for these years.

2/ For the years 1906 to 1926, inclusive, these percentages are exclusive of coal cleaned at central washeries operated by consumers; after 1926, when data became available on the tonnage cleaned by consumer-operated plants, the percentages include the total tons cleaned at the mines and at consumer-operated washeries.

3/ Data not available.

4/ One-half day or less.

TABLE 14. - GROWTH OF STRIP MINING AT BITUMINOUS-COAL AND LIGNITE-MINES IN THE UNITED STATES, 1914-47

Year	Production (thousands of net tons)			Percent of total production mined by stripping	Average tons per man per day			Average value per ton, f.o.b. mine			Number of strip mines	Number of power shovels and draglines
	Strip mines	Under-ground mines	Total all mines		Strip mines 1/	Under-ground mines 2/	Total all mines	Strip mines 1/	Under-ground mines 2/	Total all mines		
1914 ...	1,281	421,423	422,704	0.3	5.06	3.71	3.71	(3)	(3)	$1.17	4/ 35	48
1915 ...	2,832	439,792	442,624	.6	5.81	3.90	3.91	$1.18	$1.13	1.13	4/ 60	87
1916 ...	3,933	498,587	502,520	.8	6.67	3.88	3.90	1.51	1.32	1.32	4/ 79	111
1917 ...	5,790	546,001	551,791	1.0	6.52	3.75	3.77	2.34	2.26	2.26	4/ 126	182
1918 ...	8,288	571,098	579,386	1.4	6.81	3.76	3.78	2.54	2.58	2.58	4/ 165	276
1919 ...	5,635	460,225	465,860	1.2	6.21	3.82	3.84	2.33	2.49	2.49	4/ 168	287
1920 ...	8,860	559,807	568,667	1.5	7.20	3.97	4.00	4.12	3.74	3.75	4/ 174	312
1921 ...	5,057	410,865	415,922	1.2	8.28	4.18	4.20	2.87	2.89	2.89	4/ 155	279
1922 ...	10,209	412,059	422,268	2.4	8.09	4.24	4.28	3.07	3.02	3.02	272	379
1923 ...	11,940	552,625	564,565	2.1	9.32	4.43	4.47	2.31	2.69	2.68	263	442
1924 ...	13,607	470,080	483,687	2.8	9.91	4.50	4.56	2.00	2.20	2.20	234	420
1925 ...	16,871	503,182	520,053	3.2	11.18	4.45	4.52	1.84	2.05	2.04	227	389
1926 ...	16,923	556,444	573,367	3.0	11.13	4.42	4.50	1.89	2.07	2.06	237	410
1927 ...	18,378	499,385	517,763	3.6	11.06	4.47	4.55	1.90	1.99	1.99	255	455
1928 ...	19,789	480,956	500,745	4.0	13.02	4.61	4.73	1.69	1.87	1.86	250	415
1929 ...	20,268	514,721	534,989	3.8	14.08	4.73	4.85	1.57	1.79	1.78	200	411
1930 ...	19,842	447,684	467,526	4.3	16.21	4.93	5.06	1.54	1.71	1.70	218	341
1931 ...	18,932	363,157	382,089	5.0	17.68	5.12	5.30	1.51	1.54	1.54	235	314
1932 ...	19,641	290,069	309,710	6.3	16.95	4.99	5.22	1.32	1.31	1.31	255	332
1933 ...	18,270	315,360	333,630	5.5	13.59	4.60	4.78	1.33	1.34	1.34	289	389
1934 ...	20,790	338,578	359,368	5.8	13.28	4.23	4.40	1.49	1.76	1.75	344	458
1935 ...	23,647	348,726	372,373	6.4	12.01	4.32	4.50	1.47	1.79	1.77	368	507
1936 ...	28,126	410,962	439,088	6.4	13.91	4.42	4.62	1.49	1.77	1.76	381	562
1937 ...	31,751	413,780	445,531	7.1	(3)	(3)	4.69	(3)	(3)	1.94	449	(3)
1938 ...	30,407	318,138	348,545	8.7	15.00	4.60	4.89	(3)	(3)	1.95	465	737
1939 ...	37,722	357,133	394,855	9.6	14.68	4.92	5.25	1.49	1.88	1.84	537	914
1940 ...	43,167	417,604	460,771	9.4	15.63	4.86	5.19	1.56	1.94	1.91	638	1,071
1941 ...	55,071	459,078	514,149	10.7	15.59	4.83	5.20	1.79	2.23	2.19	769	1,321
1942 ...	67,203	515,490	582,693	11.5	15.52	4.74	5.12	1.90	2.41	2.36	834	1,438
1943 ...	79,685	510,492	590,177	13.5	15.15	4.89	5.38	2.28	2.75	2.69	1,004	1,839
1944 ...	100,898	518,678	619,576	16.3	15.89	5.04	5.67	2.48	3.01	2.92	1,240	2,312
1945 ...	109,987	467,630	577,617	19.0	15.46	5.04	5.78	2.65	3.16	3.06	1,370	2,439
1946 ...	112,964	420,958	533,922	21.1	15.73	5.43	6.30	2.87	3.59	3.44	1,445	2,744
1947 ...	139,395	491,229	630,624	22.1	15.93	5.49	6.42	3.47	4.35	4.16	1,750	3,254

1/ Includes power strip pits proper and excludes horse stripping operations and mines combining stripping and underground in the same operation for the years 1914-42, inclusive. The years 1943-47 inclusive, include data, on all strip mines.
2/ Computed by deducting "strip mines" data from "Total all mines."
3/ Data not available.
4/ Exclusive of horse stripping operations.

TABLE 15. - COAL PRODUCED IN THE UNITED STATES, BY STATES, 1937-47 WITH PRODUCTION OF MAXIMUM YEAR AND CUMULATIVE PRODUCTION FROM EARLIEST RECORD TO END OF 1947, IN THOUSANDS OF NET TONS

State	Maximum production		Production by years											Total production from earliest record to end of 1947
	Year	Quantity	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	
Alabama	1926	21,001	12,440	11,062	12,047	15,324	15,464	19,301	17,160	18,752	18,236	16,183	19,048	790,543
Arkansas	1907	2,670	1,511	1,197	1,152	1,454	1,574	1,985	1,718	1,972	1,854	1,631	1,871	88,752
Colorado	1917	12,483	7,187	5,663	5,923	6,589	6,949	8,086	8,324	8,168	7,621	5,914	6,358	460,854
Georgia	1903	416	(1)	(1)	(1)	(1)	(1)	31	14	24	43	114	7	(1)
Illinois	1918	89,291	51,602	41,912	46,783	50,610	54,703	65,071	72,631	76,792	73,011	63,469	67,860	3,018,733
Indiana	1918	30,679	17,765	14,759	16,943	18,869	22,484	25,388	25,065	27,962	25,183	21,697	25,449	944,889
Iowa	1917	8,966	3,637	3,103	2,948	3,231	2,939	2,948	2,771	2,141	2,046	1,788	1,684	334,338
Kansas	1918	7,562	2,893	2,654	2,675	3,579	4,008	4,230	3,437	3,369	3,228	2,493	2,745	261,482
Kentucky	1947	84,241	47,086	38,545	42,557	49,141	53,710	62,231	63,211	71,356	69,593	66,553	84,241	1,811,107
Maryland	1907	5,533	1,549	1,281	1,443	1,503	1,701	2,001	1,933	1,870	1,763	2,003	2,051	257,496
Michigan	1907	2,036	562	494	457	410	311	231	169	140	126	80	14	46,348
Missouri	1917	5,671	4,091	3,436	3,273	3,097	3,145	3,520	4,310	4,779	3,983	3,733	4,236	249,798
Montana (bituminous and lignite)	1944	4,844	2,965	2,732	2,804	2,867	3,254	3,829	4,833	4,844	4,467	3,723	3,178	151,599
New Mexico	1918	4,023	1,715	1,239	1,230	1,111	1,251	1,669	1,851	1,744	1,484	1,280	1,443	119,072
North Carolina	1922	79	—	—	—	—	—	—	—	—	—	—	—	(1)
North Dakota (lignite)	1947	2,760	2,251	2,050	2,072	2,218	2,309	2,537	2,500	2,366	2,522	2,555	2,760	61,712
Ohio	1920	45,878	25,178	18,591	20,289	22,772	29,319	32,764	32,255	33,877	32,737	32,314	37,548	1,628,013
Oklahoma	1920	4,849	1,600	1,245	1,188	1,646	1,771	2,387	2,838	3,209	2,909	2,647	3,421	152,291
Pennsylvania (bituminous)	1918	178,551	111,002	77,705	92,584	116,603	130,240	144,073	141,050	146,052	132,965	125,497	147,079	7,142,034
Tennessee	1942	8,158	5,213	4,472	5,185	6,008	7,045	8,158	7,179	7,266	6,271	5,618	6,258	313,657
Texas (bituminous and lignite)	1913	2,429	910	879	826	621	353	304	153	2/ 109	2/ 80	2/ 56	2/ 61	60,805
Utah	1947	7,429	3,810	2,947	3,285	3,576	4,077	5,517	6,666	7,119	6,679	5,994	7,429	184,893
Virginia	1943	20,280	13,795	12,283	13,531	15,348	18,441	20,136	20,280	19,514	17,235	15,527	20,171	521,540
Washington	1918	4,082	2,002	1,567	1,690	1,650	1,841	1,953	1,528	1,524	1,357	991	1,118	140,330
West Virginia	1947	176,157	118,646	93,288	108,362	126,438	140,250	155,882	158,804	164,704	152,035	144,020	176,157	4,670,271
Wyoming	1945	9,847	5,918	5,204	5,373	5,808	6,646	8,133	9,155	9,540	9,847	7,635	8,051	351,048
Other States	—	—	203	237	235	299	364	328	342	383	342	407	386	65,014
Total bituminous and lignite	1947	630,624	445,531	348,545	394,855	460,772	514,149	582,693	590,177	619,576	577,617	533,922	630,624	23,826,619
Pennsylvania anthracite	1917	99,612	51,856	46,099	51,487	51,485	56,368	60,328	60,644	63,701	54,934	60,507	57,190	4,799,101
Grand total	—	—	497,387	394,644	446,342	512,257	570,517	643,021	650,821	683,277	632,551	594,429	687,814	28,625,720

1/ Included under "Other States."
2/ Lignite only.

SUMMARY BY STATES AND DISTRICTS

TABLE 16. - NUMBER OF MINES, PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES, IN 1947
(Exclusive of mines producing less than 1,000 tons)

State	Number of active mines	Disposition of coal produced (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
		Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total quantity		Underground	Surface		Total			
								In strip pits	All others				
Alabama	406	16,847,834	1,490,049	710,342	19,048,225	$5.48	16,368	652	3,398	20,418	245	5,004,744	3.81
Alaska	4	322,306	36,558	2,356	361,220	7.07	161	25	75	261	313	81,712	4.42
Arizona	4	—	10,060	—	10,060	4.61	26	—	7	33	123	4,049	2.48
Arkansas	63	1,742,925	122,804	5,220	1,870,949	6.67	1,668	342	412	2,422	185	448,330	4.17
Colorado	178	4,759,874	1,429,065	169,165	6,358,104	4.53	4,703	55	1,227	5,985	208	1,244,746	5.11
Georgia	2	7,119	—	164	7,283	5.40	39	8	10	57	37	2,121	3.43
Illinois	260	59,916,278	6,786,040	1,157,693	67,860,011	3.15	21,581	1,866	7,974	31,421	236	7,425,236	9.14
Indiana	108	22,861,389	2,049,429	538,279	25,449,097	3.22	5,158	2,084	2,500	9,742	236	2,297,530	11.08
Iowa	120	794,237	883,446	6,372	1,684,055	3.82	1,378	219	315	1,912	180	344,977	4.88
Kansas	59	2,486,718	205,392	52,424	2,744,534	3.34	600	454	407	1,461	216	315,249	8.71
Kentucky	2,610	72,295,162	11,341,494	604,026	84,240,682	4.42	51,908	1,938	10,905	64,751	215	13,899,490	6.06
Maryland	118	1,522,845	519,231	9,206	2,051,282	4.80	1,459	359	395	2,213	191	423,124	4.85
Michigan	1	—	12,583	1,430	14,013	7.68	27	—	6	33	204	6,732	2.08
Missouri	82	3,470,338	761,688	4,401	4,236,427	3.33	787	555	561	1,903	203	387,157	10.94
Montana: Bituminous	20	3,060,708	66,825	11,688	3,139,221	2.04	545	90	265	900	214	192,687	16.29
Lignite	8	—	38,469	200	38,669	2.90	28	2	7	37	185	6,859	5.64
Total Montana	28	3,060,708	105,294	11,888	3,177,890	2.05	573	92	272	937	213	199,546	15.93
New Mexico	24	1,329,784	72,479	40,947	1,443,210	4.52	917	—	247	1,164	231	268,468	5.38
North Dakota (lignite)	46	2,228,163	458,278	73,421	2,759,862	1.92	154	279	247	680	255	173,735	15.89
Ohio	586	30,587,080	6,764,753	196,371	37,548,204	3.50	13,243	3,280	4,064	20,587	220	4,532,135	8.28
Oklahoma	70	3,266,390	143,707	10,466	3,420,563	4.41	1,257	528	547	2,332	208	484,553	7.06
Oregon	—	—	—	—	—	—	—	—	—	—	—	—	—
Pennsylvania	2,171	121,260,962	16,316,208	9,502,126	147,079,296	4.23	76,219	10,512	16,909	103,640	239	24,720,918	5.95
South Dakota (lignite)	4	420	14,158	40	14,618	2.44	2	11	2	15	176	2,634	5.55
Tennessee	131	5,735,342	469,485	53,656	6,258,483	4.77	5,245	144	996	6,385	209	1,333,810	4.69
Texas (lignite)	1	60,504	—	—	60,504	.98	—	15	—	15	240	3,600	16.81
Utah	44	6,989,744	277,178	161,777	7,428,699	3.93	3,101	—	1,101	4,202	253	1,061,384	7.00
Virginia	267	19,423,782	260,691	486,326	20,170,799	4.83	13,409	326	2,397	16,132	251	4,054,885	4.97
Washington	39	851,061	241,998	24,867	1,117,926	5.99	840	97	342	1,279	238	303,967	3.68
West Virginia	1,227	167,486,995	4,948,147	3,721,437	176,156,579	4.48	87,404	5,745	21,785	114,934	246	28,255,515	6.23
Wyoming	47	7,776,451	139,047	135,649	8,051,147	3.37	3,142	197	929	4,268	238	1,017,077	7.92
Total	8,700	557,084,411	55,859,262	17,680,049	630,623,722	4.16	311,369	29,783	78,030	419,182	234	98,297,424	6.42

1/ Includes coal loaded at mine directly into railroad cars or river barges, hauled by truck to railroad siding for shipment by rail, and hauled by truck to waterway for shipment by water.

2/ Includes coal used by mine employees, taken by locomotive tenders at tipple, used at mine for power and heat, coal transported from mine to point of use by conveyor or tram, coal made into beehive coke at mine and all other uses at mine.

3/ Value received or charged for coal f.o.b. mine, including selling cost. (Includes a value for coal not sold but used by producer, such as mine fuel and coal coked [not coke] as estimated by producer at average prices that might have been received if such coal had been sold commercially.)

TABLE 17. - NUMBER OF MINES, PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY DISTRICTS, IN 1947
(Districts as defined in the Bituminous Coal Act of 1937 and modifications thereto. Exclusive of mines producing less than 1,000 tons)

District	Number of active mines	Disposition of coal produced (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
		Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total quantity		Under-ground	Surface		Total			
								In strip pits	All others				
1. Eastern Pennsylvania	1,429	53,979,699	6,415,075	2,437,407	62,832,181	$4.45	34,347	6,763	8,400	49,510	224	11,114,597	5.65
2. Western Pennsylvania	888	70,096,990	10,437,633	7,075,758	87,610,381	4.10	43,756	4,413	9,060	57,229	248	14,191,031	6.17
3. Northern West Virginia	504	48,519,197	3,361,872	933,273	52,814,342	3.83	19,936	3,567	6,022	29,525	205	6,061,922	8.71
4. Ohio	586	30,587,080	6,764,753	196,371	37,548,204	3.50	13,243	3,280	4,064	20,587	220	4,532,135	8.28
5. Michigan	1	—	12,583	1,430	14,013	7.68	27	—	6	33	204	6,732	2.08
6. Panhandle	42	3,102,327	718,312	1,174,379	4,995,018	3.71	2,536	325	492	3,353	242	812,155	6.15
7. Southern Numbered 1	339	60,674,328	315,250	792,410	61,781,988	5.04	37,654	1,072	8,177	46,903	267	12,509,152	4.94
8. Southern Numbered 2	2,939	131,241,808	9,451,173	1,914,640	142,607,621	4.74	90,132	1,445	18,826	110,403	233	25,687,943	5.55
9. West Kentucky	334	19,233,293	2,912,406	36,683	22,182,382	3.14	6,301	1,354	2,260	9,915	209	2,070,021	10.72
10. Illinois	260	59,916,278	6,786,040	1,157,693	67,860,011	3.15	21,581	1,866	7,974	31,421	236	7,425,236	9.14
11. Indiana	108	22,861,389	2,049,429	538,279	25,449,097	3.22	5,158	2,084	2,500	9,742	236	2,297,530	11.08
12. Iowa	120	794,237	883,446	6,372	1,684,055	3.82	1,378	219	315	1,912	180	344,977	4.88
13. Southeastern	457	17,732,399	1,733,584	722,733	20,188,716	5.42	17,389	745	3,558	21,692	242	5,247,786	3.85
14. Arkansas-Oklahoma	85	2,275,952	175,345	7,148	2,458,445	6.32	2,056	450	564	3,070	175	538,359	4.57
15. Southwestern (bituminous and lignite)	190	8,750,923	1,058,246	65,363	9,874,532	3.58	2,256	1,444	1,363	5,063	217	1,100,530	8.97
16. Northern Colorado	30	1,105,650	791,961	38,993	1,936,604	4.10	1,254	16	242	1,512	209	315,284	6.14
17. Southern Colorado	152	4,849,302	642,886	139,500	5,631,688	4.64	4,009	39	1,136	5,184	216	1,117,196	5.04
18. New Mexico	24	134,706	76,757	31,619	243,082	5.28	383	—	103	486	174	84,783	2.87
19. Wyoming	47	7,776,451	139,047	135,649	8,051,147	3.37	3,142	197	929	4,268	238	1,017,077	7.92
20. Utah	44	6,989,744	277,178	161,777	7,428,699	3.93	3,101	—	1,101	4,202	253	1,061,384	7.00
21. North-South Dakota (lignite)	50	2,228,583	472,436	73,461	2,774,480	1.93	156	290	249	695	254	176,369	15.73
22. Montana (bituminous and lignite)	28	3,060,708	105,294	11,888	3,177,890	2.05	573	92	272	937	213	199,546	15.93
23. Washington	43	1,173,367	278,556	27,223	1,479,146	6.25	1,001	122	417	1,540	250	385,679	3.84
Total	8,700	557,084,411	55,859,262	17,680,049	630,623,722	4.16	311,369	29,783	78,030	419,182	234	98,297,424	6.42

1/ Includes coal loaded at mine directly into railroad cars or river barges, hauled by truck to railroad siding for shipment by rail, and hauled by truck to waterway for shipment by water.
2/ Includes coal used by mine employees, taken by locomotive tenders at tipple, used at mine for power and heat, coal transported from mine to point of use by conveyor or tram, coal made into beehive coke at mine and all other uses at mine.
3/ Value received or charged for coal, f.o.b. mine, including selling cost. (includes a value for coal not sold but used by producer, such as mine fuel and coal coked [not coke] as estimated by producer at average prices that might have been recieved if such coal had been sold commercially.)

NUMBER AND SIZE OF MINES

TABLE 18. NUMBER AND PRODUCTION OF BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, CLASSIFIED BY SIZE OF OUTPUT IN EACH STATE, IN 1947

(Exclusive of mines producing less than 1,000 tons)

State	Class 1A - more than 500,000 tons					Class 1B - 200,000 to 500,000 tons					Class 2 - 100,000 to 250,000 tons				
	Mines		Production			Mines		Production			Mines		Production		
	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent
Alabama	8	2.0	5,247,323	655,915	27.6	19	4.7	6,062,144	319,060	31.8	25	6.1	3,475,026	139,001	18.2
Alaska	—	—	—	—	—	—	—	—	—	—	2	50.0	294,758	147,379	81.6
Arizona	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arkansas	—	—	—	—	—	—	—	—	—	—	2	3.2	299,226	149,613	16.0
Colorado	1	.6	613,347	613,347	9.6	4	2.2	963,933	240,983	15.2	16	9.0	2,069,609	129,351	32.6
Georgia	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Illinois	53	20.4	52,192,319	984,761	76.9	21	8.1	7,043,203	335,391	10.4	31	11.9	4,063,908	131,094	6.0
Indiana	22	20.4	18,043,747	820,170	70.9	11	10.2	3,897,793	354,345	15.3	15	13.9	2,033,017	135,534	8.0
Iowa	—	—	—	—	—	1	.8	202,228	202,228	12.0	1	.8	159,372	159,372	9.5
Kansas	1	1.7	526,868	526,868	19.2	3	5.1	1,182,929	394,310	43.1	4	6.8	584,658	146,165	21.3
Kentucky	24	.9	18,759,335	781,639	22.3	74	2.9	22,305,964	301,432	26.5	105	4.0	15,425,006	146,905	18.3
Maryland	—	—	—	—	—	2	1.7	481,592	240,796	23.5	1	.8	125,214	125,214	6.1
Michigan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Missouri	3	3.7	1,931,589	643,863	45.6	4	4.9	1,373,061	343,265	32.4	2	2.4	256,917	128,459	6.1
Montana (bituminous)	1	5.0	1,982,185	1,982,185	63.1	2	10.0	683,359	341,680	21.8	1	5.0	180,397	180,397	5.7
Montana, North Dakota, South Dakota, and Texas (lignite)	—	—	—	—	—	7	11.8	2,338,488	334,070	81.4	—	—	—	—	—
New Mexico	—	—	—	—	—	3	12.5	1,076,387	358,796	74.6	1	4.2	133,801	133,801	9.3
Ohio	18	3.1	15,772,801	876,267	42.0	22	3.8	7,241,039	329,138	19.3	44	7.5	6,176,183	140,368	16.4
Oklahoma	—	—	—	—	—	6	8.6	1,514,036	252,339	44.2	6	8.6	885,894	147,649	25.9
Pennsylvania	61	2.8	59,309,898	972,293	40.3	91	4.2	28,528,344	313,498	19.4	152	7.0	21,160,095	139,211	14.4
Tennessee	—	—	—	—	—	8	6.1	2,027,851	253,481	32.4	19	14.5	2,708,633	142,560	43.3
Utah	5	11.4	4,252,502	850,500	57.3	6	13.6	2,016,230	336,038	27.1	5	11.4	611,221	122,244	8.2
Virginia	9	3.4	7,400,285	822,254	36.7	17	6.4	5,626,452	330,968	27.9	18	6.7	2,695,323	149,740	13.4
Washington	—	—	—	—	—	—	—	—	—	—	3	7.7	510,501	170,167	45.7
West Virginia	90	7.3	70,688,235	785,425	40.1	192	15.7	59,174,086	308,198	33.6	158	12.9	23,240,146	147,090	13.2
Wyoming	7	14.9	5,053,092	721,870	62.8	5	10.6	1,565,871	313,174	19.4	7	14.9	1,012,443	144,635	12.6
Total	303	3.5	261,773,526	863,939	41.5	498	5.7	155,304,990	311,857	24.6	618	7.1	88,101,348	142,559	14.0

TABLE 18. NUMBER AND PRODUCTION OF BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, CLASSIFIED BY SIZE OF OUTPUT IN EACH STATE, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

State	Class 3 - 50,000 to 100,000 tons					Class 4 - 10,000 to 50,000 tons					Class 5 - Less than 10,000 tons					Total		
	Mines		Production			Mines		Production			Mines		Production			Mines	Production (net tons)	
	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent	Number	Percent	Total (net tons)	Average per mine (net tons)	Percent		Total	Average per mine
Alabama	21	5.2	1,383,712	65,891	7.3	87	21.4	2,007,641	23,076	10.5	246	60.6	872,379	3,546	4.6	406	19,048,225	46,917
Alaska	—	—	—	—	—	2	50.0	66,462	33,231	18.4	—	—	—	—	—	4	361,220	90,305
Arizona	—	—	—	—	—	—	—	—	—	—	4	100.0	10,060	2,515	100.0	4	10,060	2,515
Arkansas	10	15.9	770,356	77,036	41.2	23	36.5	714,054	31,046	38.1	28	44.4	87,313	3,118	4.7	63	1,870,949	29,698
Colorado	18	10.1	1,343,130	74,618	21.1	37	20.8	979,297	26,467	15.4	102	57.3	388,788	3,812	6.1	178	6,358,104	35,720
Georgia	—	—	—	—	—	—	—	—	—	—	2	100.0	7,283	3,642	100.0	2	7,283	3,642
Illinois	34	13.1	2,321,165	68,270	3.4	70	26.9	1,970,637	28,152	2.9	51	19.6	268,779	5,270	.4	260	67,860,011	261,000
Indiana	9	8.3	638,244	70,916	2.5	34	31.5	770,297	22,656	3.0	17	15.7	65,999	3,882	.3	108	25,449,097	235,640
Iowa	2	1.7	139,465	69,733	8.3	42	35.0	850,551	20,251	50.5	74	61.7	332,439	4,492	19.7	120	1,684,055	14,034
Kansas	—	—	—	—	—	16	27.1	311,726	19,483	11.4	35	59.3	138,353	3,953	5.0	59	2,744,534	46,518
Kentucky	113	4.3	8,183,572	72,421	9.7	746	28.6	14,011,936	18,783	16.6	1,548	59.3	5,554,869	3,588	6.6	2,610	84,240,682	32,276
Maryland	8	6.8	523,573	65,447	25.5	32	27.1	643,515	20,110	31.4	75	63.6	277,388	3,699	13.5	118	2,051,282	17,384
Michigan	—	—	—	—	—	1	100.0	14,013	14,013	100.0	—	—	—	—	—	1	14,013	14,013
Missouri	2	2.4	133,303	66,652	3.1	14	17.1	317,552	22,682	7.5	57	69.5	224,005	3,930	5.3	82	4,236,427	51,664
Montana (bituminous)	1	5.0	79,626	79,626	2.5	5	25.0	171,000	34,200	5.5	10	50.0	42,654	4,265	1.4	20	3,139,221	156,961
Montana, North Dakota, South Dakota, and Texas (lignite)	4	6.8	262,177	65,544	9.1	6	10.2	111,249	18,542	3.9	42	71.2	161,739	3,851	5.6	59	2,873,653	48,706
New Mexico	1	4.2	82,395	82,395	5.7	5	20.8	100,074	20,015	6.9	14	58.3	50,553	3,611	3.5	24	1,443,210	60,134
Ohio	50	8.5	3,458,313	69,166	9.2	159	27.1	3,778,383	23,763	10.1	293	50.0	1,121,485	3,828	3.0	586	37,548,204	64,075
Oklahoma	5	7.1	420,233	84,047	12.3	17	24.3	454,231	26,719	13.3	36	51.4	146,169	4,060	4.3	70	3,420,563	48,865
Pennsylvania	226	10.4	16,029,361	70,926	10.9	782	36.0	18,081,422	23,122	12.3	859	39.6	3,970,176	4,622	2.7	2,171	147,079,296	67,747
Tennessee	7	5.3	512,178	73,168	8.2	34	26.0	754,154	22,181	12.0	63	48.1	255,667	4,058	4.1	131	6,258,483	47,775
Utah	2	4.5	173,354	86,677	2.3	14	31.8	331,096	23,650	4.5	12	27.3	44,296	3,691	.6	44	7,428,699	168,834
Virginia	20	7.5	1,482,886	74,144	7.3	128	47.9	2,647,139	20,681	13.1	75	28.1	318,714	4,250	1.6	267	20,170,799	75,546
Washington	2	5.1	144,493	72,247	12.9	17	43.6	388,313	22,842	34.7	17	43.6	74,619	4,389	6.7	39	1,117,926	28,665
West Virginia	166	13.5	11,940,160	71,929	6.8	388	31.6	9,968,739	25,693	5.7	233	19.0	1,145,213	4,915	.6	1,227	176,156,579	143,567
Wyoming	3	6.4	213,728	71,243	2.7	6	12.8	124,586	20,764	1.5	19	40.4	81,427	4,286	1.0	47	8,051,147	171,301
Total	704	8.1	50,235,424	71,357	8.0	2,665	30.6	59,568,067	22,352	9.4	3,912	45.0	15,640,367	3,998	2.5	8,700	630,623,722	72,485

TABLE 19. - BITUMINOUS COAL AND LIGNITE LOADED FOR SHIPMENT BY RAILROADS AND WATERWAYS IN THE UNITED STATES, AS REPORTED BY MINE OPERATORS, IN NET TONS, IN 1947 1/

Route	State	Quantity	
		By State	Total for route
RAILROADS			
Alabama Central	Alabama	145,371	145,371
Alabama Great Southern	Alabama	105,050	105,050
Alaska	Alaska	322,306	322,306
Algiers, Winslow, & Western	Indiana	2,718,938	2,718,938
Alton	Illinois	310,005	310,005
Artemus-Jellico	Kentucky	362,353	362,353
Atchison, Topeka, & Santa Fe	Colorado	286,063	2,368,874
	Illinois	822,159	
	Kansas	331,400	
	New Mexico	929,252	
Baltimore & Ohio	Illinois	339,314	50,423,007
	Indiana	691,727	
	Maryland	141,495	
	Ohio	4,832,447	
	Pennsylvania	12,322,568	
	West Virginia	32,095,456	
Bessemer & Lake Erie	Pennsylvania	4,671,745	4,671,745
Bevier & Southern	Missouri	210,728	210,728
Brimstone	Tennessee	95,398	95,398
Buffalo Creek & Gauley	West Virginia	595,892	595,892
Cambria & Indiana	Pennsylvania	3,701,411	3,701,411
Campbell's Creek	West Virginia	935,154	935,154
Carbon County	Utah	1,735,807	1,735,807
Central of Georgia	Alabama	822,397	829,516
	Georgia	7,119	
Chesapeake & Ohio	Kentucky	15,704,427	73,652,365
	Ohio	1,636,614	
	West Virginia	56,311,324	
Cheswick & Harmar	Pennsylvania	995,089	995,089
Chicago, Burlington & Quincy	Colorado	114,598	14,906,913
	Illinois	12,222,111	
	Iowa	183,669	
	Missouri	314,934	
	Wyoming	2,071,601	
Chicago & Eastern Illinois	Illinois	1,240,826	3,103,685
	Indiana	1,862,859	
Chicago & Illinois Midland	Illinois	6,376,878	6,376,878
Chicago, Indianapolis & Louisville	Indiana	777,588	777,588
Chicago, Milwaukee, St. Paul & Pacific	Indiana	5,737,714	6,699,582
	Iowa	125,982	
	Missouri	2,426	
	Montana (bituminous)	792,242	
	North Dakota (lignite)	40,798	
	South Dakota (lignite)	420	
Chicago & North Western	Illinois	2,979,546	2,979,546
Chicago, Rock Island, & Pacific	Arkansas	70,170	1,525,177
	Illinois	685,243	
	Iowa	220,512	
	Missouri	210,173	
	Oklahoma	339,079	

See footnote at end of table.

TABLE 19. - BITUMINOUS COAL AND LIGNITE LOADED FOR SHIPMENT BY RAILROADS AND WATERWAYS IN THE UNITED STATES, AS REPORTED BY MINE OPERATORS, IN NET TONS, IN 1947 1/ - Continued

Route	State	Quantity	
		By State	Total for route
RAILROADS - Continued			
Cleveland, Cincinnati, Chicago, & St. Louis	Illinois	4,754,601	8,027,968
	Indiana	3,273,367	
Clinchfield	Kentucky	79,050	4,929,963
	Virginia	4,850,913	
Colorado & Southeastern	Colorado	105,806	105,806
Colorado & Southern	Colorado	359,814	359,814
Colorado & Wyoming	Colorado	611,840	611,840
Conemaugh & Black Lick	Pennsylvania	72,681	72,681
Cumberland & Pennsylvania	Maryland	444,674	444,674
Dardanelle & Russellville Ry. Co.	Arkansas	48,125	48,125
Denver & Intermountain	Colorado	100,085	100,085
Denver & Rio Grande Western	Colorado	2,367,047	5,564,274
	New Mexico	18,730	
	Utah	3,178,497	
Detroit, Toledo, & Ironton	Ohio	700	700
East Broad Top Railroad & Coal Co.	Pennsylvania	556,520	556,520
Erie	Ohio	97,704	980,066
	Pennsylvania	882,362	
Evansville Suburban & Newburgh	Indiana	10,641	10,641
Fort Dodge, Des Moines, & Southern	Iowa	39,821	39,821
Fort Smith & Van Buren	Oklahoma	77,815	77,815
Galesburg & Great Eastern	Illinois	656,089	656,089
Great Northern	Montana (bituminous)	38,693	688,608
	North Dakota (lignite)	514,520	
	Washington	135,395	
Gulf, Mobile & Ohio	Alabama	276,176	2,248,468
	Illinois	1,972,292	
Harriman & Northeastern	Tennessee	2,961	2,961
Huntington & Broad Top Mountain Railroad & Coal Co.	Pennsylvania	954,336	954,336
Illinois Central	Alabama	223,677	23,529,108
	Illinois	12,122,960	
	Indiana	329,561	
	Kentucky	10,852,910	
Illinois Terminal	Illinois	316,697	316,697
Interstate	Kentucky	194,650	2,738,924
	Virginia	2,544,274	
Iowa Southern Utilities Company	Iowa	23,024	23,024
Johnstown & Stony Creek	Pennsylvania	341,441	341,441
Joplin - Pittsburg	Kansas	266,280	266,280
Kanawha Central	West Virginia	125,242	125,242
Kansas City Southern	Arkansas	86,430	1,298,103
	Missouri	976,761	
	Oklahoma	234,912	
Kansas, Oklahoma, & Gulf	Oklahoma	11,533	11,533
Kelley's Creek & Northwestern	West Virginia	706,420	706,420
Kentucky & Tennessee	Kentucky	732,154	732,154
Lake Erie, Franklin, & Clarion	Pennsylvania	358,529	358,529
Laramie, North Park, & Western	Colorado	28,910	28,910
Ligonier Valley	Pennsylvania	163,755	163,755
Litchfield & Madison	Illinois	781,729	781,729

See footnote at end of table.

TABLE 19. - BITUMINOUS COAL AND LIGNITE LOADED FOR SHIPMENT BY RAILROADS AND WATERWAYS IN THE UNITED STATES, AS REPORTED BY MINE OPERATORS, IN NET TONS, IN 1947 1/ - Continued

Route	State	Quantity	
		By State	Total for route
RAILROADS - Continued			
Louisville & Nashville	Alabama	3,870,347	40,206,272
	Illinois	139,026	
	Kentucky	34,939,464	
	Tennessee	1,026,574	
	Virginia	230,861	
Mary Lee	Alabama	752,756	752,756
Midland Valley	Arkansas	287,357	705,954
	Oklahoma	418,597	
Minneapolis & St. Louis	Illinois	2,044,776	2,069,819
	Iowa	25,043	
Minneapolis, St. Paul, & Sault Ste. Marie	North Dakota (lignite)	620,106	620,106
Missouri-Illinois	Illinois	131,487	131,487
Missouri-Kansas-Texas	Kansas	286,589	749,336
	Missouri	320,210	
	Oklahoma	142,537	
Missouri Pacific	Arkansas	813,248	9,188,018
	Illinois	6,911,054	
	Kansas	763,027	
	Missouri	400,950	
	Oklahoma	299,739	
Monongahela	Pennsylvania	4,060,451	16,159,583
	West Virginia	12,099,132	
Montana, Wyoming, & Southern	Montana (bituminous)	249,862	249,862
Montour	Pennsylvania	6,176,344	6,176,344
Nashville, Chattanooga, & St. Louis	Alabama	2,753	794,700
	Tennessee	791,947	
New York Central (includes coal shipped over Kanawha and Michigan, Kelley's Creek, Toledo and Ohio Central, and Zanesville and Western)	Ohio	7,168,030	16,612,579
	Pennsylvania	7,113,434	
	West Virginia	2,331,115	
Nicholas, Fayette, and Greenbrier	West Virginia	2,212,991	2,212,991
Norfolk & Western	Kentucky	7,208,845	51,550,988
	Virginia	10,718,931	
	West Virginia	33,623,212	
North East Oklahoma	Kansas	22,670	22,670
Northern Pacific	Montana (bituminous)	1,979,911	3,656,498
	North Dakota (lignite)	1,052,739	
	Washington	623,848	
Oklahoma City-Ada-Atoka	Oklahoma	198,084	198,084
Oneida & Western	Tennessee	22,593	22,593
Pacific Coast	Washington	47,572	47,572
Pennsylvania (includes Pittsburgh, Cincinnati, Chicago, and St. Louis)	Illinois	98,991	60,827,892
	Indiana	5,244,088	
	Ohio	8,525,091	
	Pennsylvania	45,900,640	
	West Virginia	1,059,082	
Peoria Terminal	Illinois	369,335	369,335
Pittsburg & Lake Erie	Pennsylvania	1,704,557	1,704,557
Pittsburg & Shawmut	Pennsylvania	3,161,844	3,161,844
Pittsburg, Shawmut, and Northern	Pennsylvania	83,703	83,703
Pittsburgh, Chartiers, & Youghiogheny	Pennsylvania	317,966	317,966
Pittsburgh and West Virginia	Ohio	497,859	1,881,087
	Pennsylvania	1,224,079	
	West Virginia	159,149	

See footnote at end of table.

TABLE 19. - BITUMINOUS COAL AND LIGNITE LOADED FOR SHIPMENT BY RAILROADS AND WATERWAYS IN THE UNITED STATES AS REPORTED BY MINE OPERATORS, IN NET TONS, IN 1947 1/ - Continued

Route	State	Quantity	
		By State	Total for route
RAILROADS - Continued			
Preston	West Virginia	76,897	76,897
Rio Grande Southern	Colorado	7,370	7,370
Rockdale, Sandow, & Southern	Texas (lignite)	60,504	60,504
St. Louis & O'Fallon	Illinois	378,240	378,240
St. Louis-San Francisco	Alabama	2,459,093	5,876,980
	Arkansas	437,595	
	Kansas	816,752	
	Missouri	619,446	
	Oklahoma	1,544,094	
Southern	Alabama	3,228,294	10,464,888
	Illinois	130,202	
	Indiana	2,214,906	
	Kentucky	1,898,474	
	Tennessee	2,060,534	
	Virginia	932,478	
Southern Pacific	New Mexico	381,802	381,802
Springfield Terminal	Illinois	732,127	732,127
Tennessee	Tennessee	1,156,581	1,156,581
Tennessee Central	Tennessee	392,208	392,208
Tennessee Coal, Iron, & Railroad Co.	Alabama	3,472,602	3,472,602
Thomas & Sayreton	Alabama	472,976	472,976
Union	Pennsylvania	256,433	256,433
Union Pacific	Colorado	778,341	6,535,132
	Utah	7,695	
	Washington	44,246	
	Wyoming	5,704,850	
Unity	Pennsylvania	682,186	682,186
Utah	Utah	2,067,745	2,067,745
Virginian	Virginia	146,325	15,199,487
	West Virginia	15,053,162	
Wabash	Illinois	2,577,784	3,168,680
	Iowa	176,186	
	Missouri	414,710	
West Virginia Northern	West Virginia	779,527	779,527
Western Allegheny	Pennsylvania	861,396	861,396
Western Maryland	Maryland	936,676	6,482,890
	Pennsylvania	531,098	
	West Virginia	5,015,116	
Wheeling and Lake Erie	Ohio	7,595,578	7,595,578
Winifrede	West Virginia	235,088	235,088
Woodward Iron Company	Alabama	978,330	978,330
Youngstown and Suburban	Ohio	39,907	39,907
Total railroad shipments		527,281,632	527,281,632

See footnote at end of table.

TABLE 19. - BITUMINOUS COAL AND LIGNITE LOADED FOR SHIPMENT BY RAILROADS AND WATERWAYS IN THE UNITED STATES, AS REPORTED BY MINE OPERATORS, IN NET TONS, IN 1947 1/ - Continued

Route	State	Quantity	
		By State	Total for route
WATERWAYS			
Allegheny River	Pennsylvania	930,636	930,636
Black Warrior River	Alabama	38,012	38,012
Emory River	Tennessee	134,050	134,050
Illinois River	Illinois	822,806	822,806
Kanawha River	West Virginia	2,209,315	2,209,315
Monongahela River	Pennsylvania	23,215,118	24,717,214
	West Virginia	1,502,096	
Ohio River	Kentucky	322,835	877,610
	Ohio	193,150	
	West Virginia	361,625	
Tennessee River	Tennessee	52,496	52,496
Youghiogheny River	Pennsylvania	20,640	20,640
Total waterway shipments		29,802,779	29,802,779
Total loaded at mines for shipment by railroads and waterways		557,084,411	557,084,411
Shipped by truck		55,859,262	55,859,262
Used at mine 2/		17,680,049	17,680,049
Total production		630,623,722	630,623,722

1/ Includes coal loaded at mine directly into railroad cars or river barges, hauled by truck to railroad siding for shipment by rail, and hauled by truck to waterway for shipment by water. In general, figures show the quantity of bituminous coal and lignite originated for each railroad and waterway as reported by mine operators. It must be noted that in one year an operator may report coal loaded on the subsidiary railroad and in another year the same operator may report coal loaded on the parent railroad system.

2/ Includes coal used by mine employees, taken by locomotive tenders at tipple, used at mine for power and heat, coal transported from mine to point of use by conveyor or tram, coal made into beehive coke at mine and all other uses at mine.

TABLE 20. - BITUMINOUS COAL AND LIGNITE MINED BY DIFFERENT METHODS IN THE UNITED STATES, BY STATES, IN 1947

State	From underground workings							From strip pits		Grand total production (net tons)
	Mined by hand		Shot from solid		Cut by machines		Total underground (net tons)			
	Net tons	Percent of total under-ground	Net tons	Percent of total under-ground	Net tons	Percent of total under-ground		Net tons	Percent of grand total	
Alabama	374,586	2.2	3,426,223	20.0	13,298,593	77.8	17,099,402	1,948,823	10.2	19,048,225
Alaska	---	---	294,758	100.0	---	---	294,758	66,462	18.4	361,220
Arizona	---	---	10,060	100.0	---	---	10,060	---	---	10,060
Arkansas	42,498	3.8	101,478	9.1	975,845	87.1	1,119,821	751,128	40.1	1,870,949
Colorado	1,098,878	18.0	154,350	2.5	4,857,603	79.5	6,110,831	247,273	3.9	6,358,104
Georgia	---	---	3,295	100.0	---	---	3,295	3,988	54.8	7,283
Illinois	167,099	.4	2,072,473	4.1	47,903,247	95.5	50,142,819	17,717,192	26.1	67,860,011
Indiana	62,411	.5	188,234	1.7	11,003,265	97.8	11,253,910	14,195,187	55.8	25,449,097
Iowa	54,063	5.7	424,617	45.1	463,779	49.2	942,459	741,596	44.0	1,684,055
Kansas	35,004	12.9	80,831	29.8	155,261	57.3	271,096	2,473,438	90.1	2,744,534
Kentucky	396,502	.5	16,317,339	22.2	56,955,158	77.3	73,668,999	10,571,683	12.5	84,240,682
Maryland	721,415	49.7	---	---	731,444	50.3	1,452,859	598,423	29.2	2,051,282
Michigan	---	---	---	---	14,013	100.0	14,013	---	---	14,013
Missouri	40,738	10.4	29,429	7.5	322,332	82.1	392,499	3,843,928	90.7	4,236,427
Montana (bituminous)	---	---	5,596	.5	1,116,396	99.5	1,121,992	2,017,229	64.3	3,139,221
Montana (lignite)	---	---	37,098	98.5	550	1.5	37,648	1,021	2.6	38,669
New Mexico	63,220	4.4	160,739	11.1	1,219,251	84.5	1,443,210	---	---	1,443,210
North Dakota (lignite)	---	---	27,872	5.9	444,318	94.1	472,190	2,287,672	82.9	2,759,862
Ohio	112,416	.6	51,610	.2	20,023,985	99.2	20,188,011	17,360,193	46.2	37,548,204
Oklahoma	10,685	1.0	58,105	5.2	1,045,649	93.8	1,114,439	2,306,124	67.4	3,420,563
Pennsylvania	9,954,769	9.0	3,407,913	3.1	96,641,469	87.9	110,004,151	37,075,145	25.2	147,079,296
South Dakota (lignite)	---	---	1,100	100.0	---	---	1,100	13,518	92.5	14,618
Tennessee	311,615	5.4	616,396	10.7	4,813,951	83.9	5,741,962	516,521	8.3	6,258,483
Texas (lignite)	---	---	---	---	---	---	---	60,504	100.0	60,504
Utah	6,565	.1	278,052	3.7	7,144,082	96.2	7,428,699	---	---	7,428,699
Virginia	53,914	.3	1,341,220	7.0	17,636,924	92.7	19,032,058	1,138,741	5.6	20,170,799
Washington	125,690	13.6	363,348	39.5	432,035	46.9	921,073	196,853	17.6	1,117,926
West Virginia	2,572,843	1.7	3,325,059	2.1	148,265,135	96.2	154,163,037	21,993,542	12.5	176,156,579
Wyoming	132,957	1.9	12,113	.2	6,637,250	97.9	6,782,320	1,268,827	15.8	8,051,147
Total	16,337,868	3.3	32,789,308	6.7	442,101,535	90.0	491,228,711	139,395,011	22.1	630,623,722

TABLE 21. - NUMBER OF COAL-CUTTING MACHINES IN BITUMINOUS-COAL AND LIGNITE MINES, AVERAGE OUTPUT PER MACHINE, AND PERCENTAGE OF TOTAL PRODUCT OF UNDERGROUND MINES CUT BY MACHINES IN THE UNITED STATES, BY STATES, IN 1946 AND 1947.

State	1946			1947		
	Number of coal-cutting machines in use	Average output per machine (net tons)	Percent of total product of underground mines cut by machines	Number of coal-cutting machines in use	Average output per machine (net tons)	Percent of total product of underground mines cut by machines
Alabama	624	17,593	76.4	605	21,981	77.8
Arkansas	76	12,533	89.2	83	11,757	87.1
Colorado	517	9,270	83.2	495	9,813	79.5
Illinois	823	56,157	95.7	749	63,956	95.5
Indiana	216	44,770	98.0	213	51,659	97.8
Iowa	56	10,281	49.7	62	7,480	49.2
Kansas	19	6,632	59.8	20	7,763	57.3
Kentucky	1,851	26,987	84.4	1,859	30,638	77.3
Maryland	49	12,641	42.9	52	14,066	50.3
Michigan	19	4,210	100.0	3	4,671	100.0
Missouri	60	5,659	86.6	50	6,447	82.1
Montana (bituminous and lignite)	57	21,401	99.2	38	29,393	96.3
New Mexico	64	15,958	79.8	64	19,051	84.5
North Dakota (lignite)	7	56,176	92.1	10	44,432	94.1
Ohio	794	22,658	99.3	822	24,360	99.2
Oklahoma	85	10,677	93.1	75	13,942	93.8
Oregon	2	7,945	92.6	-	-	-
Pennsylvania	3,404	24,183	87.7	3,322	29,091	87.9
Tennessee	271	16,882	84.4	253	19,729	83.8
Utah	231	24,797	95.6	231	30,927	96.2
Virginia	380	36,123	92.3	438	40,267	92.7
Washington	57	7,282	46.5	53	8,152	46.9
West Virginia	3,617	34,039	95.4	3,999	37,076	96.2
Wyoming	346	18,499	96.4	410	16,188	97.9
Total	13,625	28,046	90.8	13,906	31,813	90.0

TABLE 22. - STRIPPING OPERATIONS OF ALL TYPES IN THE BITUMINOUS-COAL AND LIGNITE FIELDS OF THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 1/

State and County	Number of strip pits	Number of power shovels and dragline excavators				Mined by stripping (net tons)	Average number of employees			Average number of days mines were active	Number of man-days worked	Average tons per man per day
		Steam	Electric	Diesel	Gasoline		In strip pits	All others	Total			
Alabama:												
Bibb and Blount	7	4	—	2	3	139,215	71	17	88	261	22,966	6.06
Jefferson	8	—	—	11	1	292,230	102	50	152	245	37,284	7.84
St. Clair	4	—	—	2	4	138,281	60	21	81	245	19,856	6.96
Tuscaloosa	7	—	—	11	—	386,232	100	33	133	252	33,468	11.54
Walker	20	1	3	32	2	992,865	319	121	440	198	87,250	11.38
Total Alabama	46	5	3	58	10	1,948,823	652	242	894	225	200,824	9.70
Alaska	2	—	—	2	—	66,462	25	12	37	168	6,202	10.72
Arkansas:												
Franklin	1	1	—	—	1	31,277	27	6	33	197	6,493	4.82
Johnson	4	—	—	6	1	244,973	57	27	84	194	16,326	15.01
Scott	1	—	—	1	—	86,430	22	8	30	185	5,550	15.57
Sebastian	11	5	—	15	8	388,448	236	70	306	157	48,120	8.07
Total Arkansas	17	6	—	22	10	751,128	342	111	453	169	76,489	9.82
Colorado:												
Fremont	2	—	—	—	1	7,223	8	2	10	52	515	14.03
Huerfano	1	—	—	—	—	1,051	3	—	3	40	120	8.76
Jackson	2	—	—	—	2	42,755	16	3	19	235	4,470	9.56
Routt	2	—	1	2	1	196,244	28	45	73	172	12,534	15.66
Total Colorado	7	—	1	2	4	247,273	55	50	105	168	17,639	14.02
Georgia: Walker	1	—	—	1	—	3,988	8	4	12	53	636	6.27
Illinois:												
Bureau	2	—	4	2	—	683,371	54	117	171	285	48,788	14.01
Fulton	9	—	23	5	2	6,795,762	536	588	1,124	277	311,202	21.84
Grundy	3	—	16	2	3	1,676,989	254	267	521	301	157,074	10.68
Hancock	1	—	—	1	1	17,358	11	5	16	114	1,831	9.48
Jackson	1	—	3	—	—	449,356	61	44	105	262	27,523	16.33
Knox, LaSalle and Saline	6	—	9	7	—	1,377,607	230	213	443	227	100,490	13.71
Livingston	1	—	—	—	1	6,453	3	—	3	162	486	13.28
Perry	3	—	12	2	1	2,657,818	249	382	631	257	161,914	16.41
Randolph	1	—	2	1	—	1,061,714	63	68	131	299	39,124	27.14
St. Clair	3	—	5	3	3	1,147,172	105	84	189	280	52,913	21.68
Schuyler	1	—	—	2	—	107,900	20	23	43	144	6,190	17.43
Vermilion	2	1	—	2	1	89,312	24	7	31	222	6,895	12.95
Will	1	—	2	1	—	242,833	27	24	51	248	12,648	19.20
Williamson	9	—	2	15	2	1,403,547	229	118	347	196	68,164	20.59
Total Illinois	43	1	78	43	14	17,717,192	1,866	1,940	3,806	261	995,242	17.80

See footnote at end of table.

TABLE 22. - STRIPPING OPERATIONS OF ALL TYPES IN THE BITUMINOUS-COAL AND LIGNITE FIELDS OF THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - 1/ Continued

State and County	Number of strip pits	Number of power shovels and dragline excavators				Mined by stripping (net tons)	Average number of employees			Average number of days mines were active	Number of man-days worked	Average tons per man per day
		Steam	Electric	Diesel	Gasoline		In strip pits	All others	Total			
Indiana:												
Clay	12	1	9	18	14	2,070,049	381	216	597	237	141,753	14.60
Daviess and Knox	3	—	4	2	2	788,892	108	110	218	218	47,476	16.62
Fountain	1	—	—	1	1	78,215	26	5	31	293	9,083	8.61
Greene	3	1	3	2	2	778,048	85	56	141	235	33,110	23.50
Owen	1	—	—	—	2	8,741	5	1	6	162	970	9.01
Parke	1	—	—	3	1	51,580	22	5	27	241	6,519	7.91
Pike	7	1	15	8	2	4,044,615	530	388	918	255	234,233	17.27
Spencer	2	—	—	2	2	188,636	44	26	70	209	14,607	12.91
Sullivan	6	—	11	5	1	1,963,078	289	244	533	245	130,520	15.04
Vermillion and Vigo	5	—	6	2	2	978,177	194	88	282	192	54,132	18.07
Warrick	6	—	12	16	3	3,245,156	400	312	712	250	177,990	18.23
Total Indiana	47	3	60	59	32	14,195,187	2,084	1,451	3,535	241	850,393	16.69
Iowa:												
Mahaska	9	—	1	9	9	305,406	98	42	140	278	38,882	7.85
Marion	12	—	1	4	10	342,345	75	31	106	235	24,960	13.72
Monroe	2	—	—	—	—	9,784	10	—	10	191	1,914	5.11
Van Buren	3	—	—	1	3	24,351	16	5	21	171	3,584	6.79
Wapello	3	—	—	4	3	59,710	20	14	34	162	5,520	10.82
Total Iowa	29	—	2	18	25	741,596	219	92	311	241	74,860	9.91
Kansas:												
Bourbon	5	1	2	—	1	195,405	43	23	66	210	13,876	14.08
Cherokee	10	2	4	2	5	868,068	136	84	220	242	53,206	16.32
Coffey	1	—	—	—	—	1,150	5	2	7	59	415	2.77
Crawford	9	5	15	—	4	1,390,514	243	180	423	255	107,716	12.91
Labette	2	—	—	—	1	6,364	7	3	10	200	2,004	3.18
Linn	1	—	—	1	1	5,021	7	2	9	179	1,611	3.12
Osage	3	—	—	—	2	6,916	13	3	16	125	2,005	3.45
Total Kansas	31	8	21	3	14	2,473,438	454	297	751	241	180,833	13.68
Kentucky:												
Boyd	5	—	—	10	1	450,804	99	25	124	217	26,919	16.75
Butler	3	—	—	3	—	88,500	25	9	34	240	8,155	10.85
Carter	1	—	—	3	—	111,295	49	13	62	179	11,114	10.01
Clay	1	—	—	1	—	7,775	11	3	14	85	1,190	6.53
Daviess	1	—	—	—	3	50,000	35	10	45	104	4,700	10.64
Elliott	1	1	—	—	—	2,100	4	1	5	200	1,000	2.10
Hancock	1	—	—	4	—	171,443	27	10	37	265	9,788	17.52
Hopkins	26	1	13	48	5	6,055,577	737	513	1,250	206	257,587	23.51
Knott	1	—	—	—	—	3,200	8	2	10	34	340	9.41
Knox	2	—	—	4	—	43,360	23	11	34	256	8,720	4.97
Laurel	4	1	—	8	—	259,460	78	26	104	245	25,478	10.18
Leslie	1	—	—	1	—	6,235	16	9	25	25	625	9.98
Letcher	9	—	—	20	—	679,114	185	46	231	220	50,910	13.34
Magoffin	1	—	—	1	—	1,115	5	1	6	20	120	9.29
McCreary	1	—	—	1	—	10,080	4	2	6	223	1,338	7.53
Muhlenberg	8	2	4	15	4	1,481,381	299	87	386	189	73,075	20.27
Ohio	11	—	2	19	2	664,181	209	112	321	125	40,049	16.58
Perry	1	—	1	2	—	206,705	40	5	45	258	11,630	17.77
Pike	3	—	—	3	—	66,518	21	13	34	123	4,167	15.96
Pulaski	2	—	—	2	—	7,400	7	3	10	122	1,220	6.07
Rockcastle	1	—	—	2	—	7,000	4	2	6	140	840	8.33
Webster	1	—	—	2	1	150,190	22	6	28	213	5,964	25.18
Whitley	4	2	—	1	—	48,250	30	12	42	158	6,635	7.27
Total Kentucky	89	7	20	150	16	10,571,683	1,938	921	2,859	193	551,564	19.17

See footnote at end of table.

TABLE 22. - STRIPPING OPERATIONS OF ALL TYPES IN THE BITUMINOUS-COAL AND LIGNITE FIELDS OF THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - 1/ Continued

State and County	Number of strip pits	Number of power shovels and dragline excavators				Mined by stripping (net tons)	Average number of employees			Average number of days mines were active	Number of man-days worked	Average tons per man per day
		Steam	Electric	Diesel	Gasoline		In strip pits	All others	Total			
Maryland:												
Allegany	17	—	—	10	13	274,019	181	61	242	113	27,290	10.04
Garrett	15	1	—	10	9	324,404	178	56	234	123	28,883	11.23
Total Maryland	32	1	—	20	22	598,423	359	117	476	118	56,173	10.65
Missouri:												
Barton	5	—	3	4	3	463,688	123	58	181	176	31,946	14.51
Bates	3	—	4	—	2	989,011	70	98	168	271	45,550	21.71
Boone	2	—	—	2	—	58,414	15	1	16	257	4,107	14.22
Callaway	3	—	—	4	3	165,888	52	21	73	236	17,201	9.64
Dade	3	—	—	—	1	8,078	6	3	9	277	2,490	3.24
Henry	6	—	8	3	1	727,256	113	55	168	230	38,636	18.82
Jasper	1	1	—	—	—	5,504	3	1	4	310	1,240	4.44
Macon	2	—	5	—	—	541,647	45	79	124	293	36,353	14.90
Monroe	2	1	—	—	1	7,219	11	3	14	220	3,076	2.35
Randolph	1	—	2	—	—	413,254	29	56	85	269	22,895	18.05
St. Clair	1	—	—	1	—	24,597	10	5	15	270	4,050	6.07
Vernon	6	3	5	1	1	439,372	78	38	116	240	27,858	15.77
Total Missouri	35	5	27	15	12	3,843,928	555	418	973	242	235,402	16.33
Montana bituminous coal:												
Carbon	1	—	1	1	—	35,044	17	7	24	131	3,142	11.15
Rosebud	1	—	6	1	—	1,982,185	73	17	90	278	25,011	79.25
Total bituminous coal	2	—	7	2	—	2,017,229	90	24	114	247	28,153	71.65
Montana: Lignite	1	—	—	—	—	1,021	2	—	2	121	242	4.22
Total Montana	3	—	7	2	—	2,018,250	92	24	116	245	28,395	71.08
North Dakota: Lignite	30	2	15	10	19	2,287,672	279	197	476	249	118,536	19.30
Ohio:												
Athens	7	—	—	14	5	534,762	122	64	186	200	37,233	14.36
Belmont	18	—	2	24	8	1,590,173	232	130	362	233	84,198	18.89
Carroll	5	—	—	10	4	202,307	74	23	97	192	18,633	10.86
Columbiana	17	—	—	29	5	699,376	169	49	218	231	50,460	13.86
Coshocton	10	—	—	13	8	307,702	91	32	123	209	25,746	11.95
Gallia	1	—	—	—	—	1,344	3	—	3	67	201	6.69
Guernsey	4	—	—	7	1	219,375	73	20	93	173	16,122	13.61
Harrison	18	—	16	31	5	5,095,837	762	363	1,125	239	269,305	18.92
Hocking	6	—	—	9	3	160,368	72	31	103	123	12,677	12.65
Holmes	1	—	—	4	—	43,568	16	14	30	151	4,530	9.62
Jackson	12	—	—	5	3	103,165	53	15	68	186	12,671	8.14
Jefferson	28	2	5	43	10	2,757,813	498	230	728	208	151,764	13.17
Lawrence	2	1	—	2	—	24,583	7	2	9	169	1,518	16.19
Mahoning	6	—	—	9	—	176,533	48	8	56	198	11,089	15.92
Meigs	2	—	—	1	2	51,971	13	5	18	231	4,166	12.48
Morgan	4	—	—	2	2	37,719	32	14	46	67	3,088	12.21
Muskingum	8	1	2	5	7	1,153,881	131	43	174	222	38,566	29.92
Noble	7	—	2	13	—	717,537	118	80	198	139	27,607	25.99
Perry	21	—	3	35	11	1,527,657	323	242	565	200	113,214	13.49
Portage	1	—	—	2	—	94,131	18	6	24	316	7,584	12.41
Stark	7	—	—	11	11	386,398	96	28	124	256	31,734	12.18
Tuscarawas	16	2	—	17	19	1,030,273	198	96	294	283	83,327	12.36
Vinton	10	—	—	9	5	354,564	114	59	173	236	40,893	8.67
Wayne	1	—	—	2	—	89,156	17	4	21	289	6,069	14.69
Total Ohio	212	6	30	297	109	17,360,193	3,280	1,558	4,838	218	1,052,395	16.50

See footnote at end of table.

TABLE 22. STRIPPING OPERATIONS OF ALL TYPES IN THE BITUMINOUS-COAL AND LIGNITE FIELDS OF THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - 1/ Continued

State and County	Number of strip pits	Number of power shovels and dragline excavators				Mined by stripping (net tons)	Average number of employees			Average number of days mines were active	Number of man-days worked	Average tons per man per day
		Steam	Electric	Diesel	Gasoline		In strip pits	All others	Total			
Oklahoma:												
Coal	4	—	1	4	—	208,140	44	30	74	273	20,231	10.29
Craig	2	—	—	2	—	7,839	9	5	14	129	1,802	4.35
Haskell	1	1	—	1	—	86,128	22	2	24	264	6,342	13.58
Latimer	1	—	2	—	—	314,163	30	28	58	280	16,242	19.34
Le Flore	4	—	—	4	5	312,626	86	47	133	170	22,605	13.83
Muskogee	2	3	—	1	—	203,930	53	15	68	321	21,844	9.34
Okmulgee and Tulsa	4	—	3	2	1	473,448	121	86	207	195	40,366	11.73
Rogers	4	5	3	1	2	610,044	124	69	193	287	55,305	11.03
Wagoner	2	—	1	—	—	89,806	39	36	75	76	5,709	15.73
Total Oklahoma	24	9	10	15	8	2,306,124	528	318	846	225	190,446	12.11
Pennsylvania:												
Allegheny	65	—	—	109	25	4,992,337	980	389	1,369	202	276,497	18.06
Armstrong	23	—	1	45	4	1,667,681	472	157	629	221	138,944	12.00
Beaver	12	—	—	18	3	401,331	116	32	148	218	32,242	12.45
Bedford	6	—	—	11	8	497,093	160	42	202	248	50,172	9.91
Blair	1	—	—	2	—	93,263	12	4	16	240	3,840	24.29
Bradford	1	—	—	—	1	5,255	5	1	6	97	582	9.03
Butler	27	3	—	37	16	1,731,136	406	124	530	215	113,911	15.20
Cambria	47	—	—	61	5	1,938,862	595	193	788	154	121,644	15.94
Centre	15	1	—	19	10	702,624	220	67	287	208	59,675	11.77
Clarion	31	—	—	56	8	2,546,938	614	218	832	231	192,207	13.25
Clearfield	120	6	—	165	32	5,047,948	1,803	498	2,301	192	442,325	11.41
Clinton	7	1	—	7	2	462,682	125	30	155	219	33,943	13.63
Elk	16	—	—	21	1	583,090	256	49	305	159	48,497	12.02
Fayette	71	3	2	61	20	1,812,219	745	190	935	131	122,705	14.77
Fulton	1	—	—	4	—	130,529	19	7	26	234	6,084	21.45
Greene	10	—	—	18	3	546,166	141	40	181	217	39,296	13.90
Huntingdon	6	—	—	11	6	292,659	116	23	139	240	33,353	8.77
Indiana	48	—	2	61	6	1,853,676	607	187	794	164	130,369	14.22
Jefferson	39	2	1	49	5	1,441,040	451	117	568	187	106,034	13.59
Lawrence	6	—	—	6	4	151,467	41	14	55	211	11,584	13.08
Lycoming	1	—	—	1	1	6,672	5	1	6	133	795	8.39
McKean	1	—	—	—	—	1,404	4	—	4	100	400	3.51
Mercer	6	—	—	10	—	299,400	83	28	111	215	23,850	12.55
Somerset	50	—	3	59	14	1,982,976	628	196	824	171	140,876	14.08
Tioga	3	—	—	3	1	35,650	21	6	27	118	3,182	11.20
Venango	3	—	—	7	3	217,079	36	10	46	290	13,322	16.29
Washington	43	6	2	83	13	5,700,465	1,118	462	1,580	193	304,357	18.73
Westmoreland	81	2	—	65	35	1,933,503	733	186	919	139	128,010	15.10
Total Pennsylvania	740	24	11	989	226	37,075,145	10,512	3,271	13,783	187	2,578,696	14.38
South Dakota: Lignite	3	—	—	1	2	13,518	11	1	12	194	2,331	5.80
Tennessee:												
Anderson	1	—	—	—	1	3,650	2	1	3	170	510	7.16
Bledsoe	1	—	—	3	—	35,991	17	3	20	175	3,500	10.28
Campbell	1	—	2	—	—	162,336	32	23	55	231	12,683	12.80
Grundy	1	—	1	2	—	80,838	29	4	33	232	7,656	10.56
Hamilton	1	—	—	3	—	153,709	39	16	55	279	15,362	10.01
Morgan and Scott	3	—	—	5	—	79,997	25	13	38	168	6,388	12.52
Total Tennessee	8	—	3	13	1	516,521	144	60	204	226	46,099	11.20
Texas: Lignite	1	1	—	—	1	60,504	15	—	15	240	3,600	16.81

See footnote at end of table.

TABLE 22. - STRIPPING OPERATIONS OF ALL TYPES IN THE BITUMINOUS-COAL AND LIGNITE FIELDS OF THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - 1/ Continued

State and County	Number of strip pits	Number of power shovels and dragline excavators				Mined by stripping (net tons)	Average number of employees			Average number of days mines were active	Number of man-days worked	Average tons per man per day
		Steam	Electric	Diesel	Gasoline		In strip pits	All others	Total			
Virginia:												
Buchanan and Tazewell	5	—	—	14	1	437,391	146	29	175	156	27,233	16.06
Dickenson and Russell	3	—	8	7	1	422,021	105	36	141	176	24,814	17.01
Wise	7	—	—	4	3	279,329	75	19	94	191	17,931	15.58
Total Virginia	15	—	8	25	5	1,138,741	326	84	410	171	69,978	16.27
Washington:												
King	4	—	—	2	3	115,466	44	20	64	184	11,747	9.83
Kittitas	2	—	2	1	1	60,589	33	8	41	214	8,758	6.92
Thurston	2	—	—	—	3	20,798	20	4	24	152	3,645	5.71
Total Washington	8	—	2	3	7	196,853	97	32	129	187	24,150	8.15
West Virginia:												
Barbour	21	—	—	35	3	1,736,346	491	317	808	141	114,172	15.21
Boone	3	—	—	4	2	54,739	37	8	45	117	5,253	10.42
Braxton	2	—	—	1	—	53,977	24	11	35	90	3,152	17.12
Brooke	13	—	—	19	1	1,033,933	271	86	357	174	62,144	16.64
Fayette	22	—	—	45	5	2,268,569	566	157	723	204	147,150	15.42
Gilmer	2	—	—	3	—	50,007	35	14	49	86	4,190	11.93
Grant	2	—	—	3	—	46,575	67	9	76	55	4,201	11.09
Greenbrier	11	1	—	14	8	788,140	233	49	282	192	54,084	14.57
Hancock	3	—	—	4	2	116,164	38	11	49	182	8,898	13.06
Harrison	88	—	—	192	7	8,520,920	1,676	727	2,403	173	415,261	20.52
Kanawha	9	—	—	7	2	93,525	69	19	88	81	7,104	13.17
Lewis	2	—	—	4	—	217,644	44	7	51	280	14,280	15.24
Logan	3	—	—	6	—	145,904	58	12	70	143	9,999	14.59
Marion	15	—	—	11	—	301,035	141	53	194	100	19,321	15.58
Marshall	1	1	—	—	—	32,607	16	5	21	65	1,365	23.89
McDowell	4	—	—	4	—	62,987	42	12	54	85	4,578	13.76
Mineral	6	—	—	2	4	81,831	53	12	65	82	5,342	15.32
Mingo	8	—	—	21	—	935,488	223	95	318	207	65,785	14.22
Monongalia	13	—	—	24	1	1,096,731	253	71	324	211	68,356	16.04
Nicholas	15	—	—	15	1	454,716	170	53	223	162	36,171	12.57
Pocahontas	1	—	—	1	—	13,953	6	3	9	120	1,080	12.92
Preston	13	2	—	14	1	611,907	163	145	308	188	57,815	10.58
Putnam	1	—	—	2	—	38,372	14	6	20	109	2,180	17.60
Raleigh	14	—	—	19	2	530,664	251	54	305	126	38,327	13.85
Randolph	14	—	—	21	5	651,6 4	218	96	314	135	42,513	15.33
Taylor	19	—	—	28	1	979,256	238	81	319	155	49,425	19.81
Tucker	5	—	1	12	6	686,276	185	54	239	180	43,051	15.94
Upshur	5	—	—	8	2	300,471	95	36	131	135	17,656	17.02
Webster	3	—	—	3	—	64,513	44	11	55	73	4,035	15.99
Wyoming	2	—	—	2	—	24,678	24	11	35	55	1,940	12.72
Total West Virginia	320	4	1	524	53	21,993,542	5,745	2,225	7,970	164	1,308,828	16.80
Wyoming:												
Campbell and Converse	3	—	2	1	—	219,654	20	33	53	285	15,083	14.56
Carbon	3	1	—	3	1	497,744	65	37	102	235	23,946	20.79
Sheridan	1	—	—	3	—	551,429	112	60	172	244	41,893	13.16
Total Wyoming	7	1	2	7	1	1,268,827	197	130	327	247	80,922	15.68
Total United States	1,750	83	301	2,279	591	139,395,011	29,783	13,555	43,338	202	8,750,633	15.93

1/ On returns from mines combining stripping and underground methods in same operation, tonnage has been separated and figures on employment prorated so that this table includes only data pertaining to strip mining.

TABLE 23. - SUMMARY OF UNDERGROUND BITUMINOUS-COAL AND LIGNITE MINES WHERE SHOT HOLES WERE POWER-DRILLED IN THE UNITED STATES, BY STATES, IN 1947

State	Number of mines using power drills	Number of power drills		Net tons produced in working places where shot holes were power-drilled			Total production from mines using power drills (net tons)
		Electric	Compressed air	Electric drills	Compressed air drills	Total	
Alabama	73	746	111	12,985,848	248,021	13,233,869	14,868,354
Alaska	2	12	12	122,959	171,799	294,758	294,758
Arkansas	18	20	34	150,274	91,991	242,265	891,760
Colorado	91	443	57	4,038,003	25,103	4,063,106	5,439,632
Illinois	152	1178	11	47,449,154	—	47,449,154	47,917,012
Indiana	31	257	1	10,653,129	—	10,653,129	10,666,060
Iowa	13	34	2	221,180	22,506	243,686	284,425
Kansas	1	1	—	17,371	—	17,371	17,371
Kentucky	962	2,710	110	59,294,691	9,000	59,303,691	64,468,949
Maryland	5	38	5	452,250	—	452,250	685,782
Michigan	1	2	—	14,013	—	14,013	14,013
Missouri	8	9	2	160,985	—	160,985	180,680
Montana: Bituminous	11	42	3	1,060,961	—	1,060,961	1,060,961
Lignite	5	13	—	24,162	—	24,162	32,484
New Mexico	6	38	6	1,163,562	—	1,163,562	1,163,562
North and South Dakota (lignite)	8	16	—	443,035	—	443,035	450,768
Ohio	83	505	3	15,637,750	—	15,637,750	16,743,163
Oklahoma	6	39	—	664,642	—	664,642	697,066
Pennsylvania	308	2,264	524	65,479,089	858,805	66,337,894	88,134,977
Tennessee	33	212	33	3,768,478	12,150	3,780,628	4,368,299
Utah	39	270	16	7,396,498	—	7,396,498	7,402,680
Virginia	181	373	57	10,787,980	297,613	11,085,593	14,352,259
Washington	22	78	153	243,863	600,060	843,923	848,626
West Virginia	475	3,168	308	100,130,823	415,860	100,546,683	127,677,577
Wyoming	28	472	1	6,752,315	—	6,752,315	6,752,315
Total	2,562	12,940	1,449	349,113,015	2,752,908	351,865,923	415,413,533

MECHANICAL LOADING

Bituminous coal and lignite mechanically loaded in underground mines amounted to 298,157,281 tons in 1947, or 61 percent of the total underground output.

Mechanical loading equipment used in underground bituminous-coal and lignite mines is divided into two types: Devices that practically eliminate hand shoveling (known as mobile loaders, scrapers, and self loading conveyors) and those that greatly reduce the labor in hand shoveling (known as hand-loaded face conveyors and pit-car loaders). Devices in the first category are designated as "machines" and those in the second category as "conveyors".

Sales of Mechanical Loading Equipment in 1947. - The estimated capacity of mechanical loading equipment sold for underground use in all coal mines was 16 percent less in 1947 than in 1946. Table 24 shows the sales reported to bituminous coal and lignite operators, by type of equipment, and the number of manufacturers reporting for 1940-47.

Sales of conveyors to bituminous-coal and lignite mines in 1947 totaled 846 units. The figures for 1942-47 exclude duckbills, which were included in all previous years. Therefore, these sales are not comparable with those for 1941 or earlier years.

The number of mobile loaders, scrapers, and conveyors shipped into various states and the number of units in actual use in 1947 are shown in table 26.

Statistics on Mechanical Loading in Bituminous-Coal and Lignite Mines.- More than three-fourths of the underground mechanically loaded tonnage was handled by mobile loaders in 1947. Table 27 shows the tons and percent handled by each type of equipment in 1946 and 1947.

During 1947, in underground bituminous-coal and lignite mines 3,569 mobile loaders handled 229,836,006 tons, an average of 64,398 tons per mobile loader per year; self-loading conveyors averaged 14,318; scrapers, 12,748; hand-loaded face conveyors, 11,358; and pit-car loaders 4,966 per year per unit for the same period.

Mechanical Loading by States. - West Virginia has been the leading producer of mechanically loaded coal since 1939. During 1947 West Virginia produced 99,749,277 tons of mechanically loaded coal, followed by Pennsylvania with 55,387,355, Illinois with 44,402,843, Kentucky with 30,325,756, and Ohio with 14,469,873 tons. These five States produced 82 percent of the total output of underground mechanically loaded bituminous coal in the United States in 1947.

Detailed data, by States, on the number of mines and machines and the production of mechanically loaded coal compared with the total production at mines using mechanical loading devices are given in table 28. Comparative changes in underground mechanical loading in 1946-47, by States, are shown in table 29.

Table 30 shows bituminous-coal and lignite tonnage mined by stripping compared with underground hand-loaded and machine-loaded tonnage, also productivity at strip and underground mines, by States, for 1947.

TABLE 24.- UNITS OF MECHANICAL LOADING EQUIPMENT SOLD TO BITUMINOUS-COAL AND LIGNITE MINES FOR UNDERGROUND USE IN THE UNITED STATES, AS REPORTED BY MANUFACTURERS, 1940-47

	1940	1941	1942	1943	1944	1945	1946	1947	Change 1947 from 1946 (percent)
Type of equipment:									
Mobile loaders	233	367	352	234	282	349	490	485	- 1.0
Scrapers 1/	36	8	15	13	20	6	3	12	+ 300.0
Conveyors 2/	1,573	1,800	1,167	798	580	738	838	846	+ 1.0
Pit-car loaders	3	10	2	1	---	(3)	(3)	(3)	---
Total, all types	1,845	2,185	1,536	1,046	882	1,093	1,331	1,343	+ .9
Number of manufacturers reporting	32	32	28	24	22	25	24	23	---

1/ Reported as scrapers or scraper haulers and hoists.
2/ Includes hand-loaded conveyors and those equipped with duckbills or other self-loading heads. Sales of both loading heads and conveyors were counted for the years 1940 and 1941, but the figures for 1942-47, inclusive, do not include loading heads separately.
3/ Canvass of sales of pit-car loaders discontinued in 1945.

TABLE 25. --UNITS OF MECHANICAL LOADING EQUIPMENT IN USE IN UNDERGROUND BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, 1942-47

Type of equipment	1942	1943	1944	1945	1946	1947	Change 1947 from 1946 (percent)
Mobile loaders	2,301	2,525	2,737	2,950	3,200	3,569	+ 11.5
Scrapers	93	83	87	87	75	67	- 10.7
Pit-car loaders	481	321	241	142	93	71	- 23.7
Conveyors equipped with duckbills or other self-loading heads	1,062	1,226	1,331	1,383	1,521	1,531	+ .7
Hand-loaded conveyors	3,041	3,191	3,236	3,385	3,470	3,979	+ 14.7
Total, all types	6,978	7,346	7,632	7,947	8,359	9,217	+ 10.3

TABLE 26. - COMPARISON OF MECHANICAL LOADING EQUIPMENT IN ACTUAL USE WITH SALES REPORTED AND ALSO SALES OF "MOTHER" CONVEYORS AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES IN 1947

State	MECHANICAL LOADING EQUIPMENT						"Mother" conveyors 2/ sales
	Mobile loaders		Scrapers		Conveyors 1/		
	In use	Sales	In use	Sales	In use	Sales	
Alabama	135	24	31	---	358	63	5
Arkansas	---	---	---	---	73	2	1
Colorado	28	1	1	---	307	11	1
Illinois	554	24	---	---	27	5	6
Indiana	142	10	---	---	---	---	8
Iowa	5	3	---	---	12	---	1
Kentucky	351	71	1	3	709	113	31
Maryland	3	1	---	---	35	3	---
Michigan	---	---	---	---	1	---	---
Montana	41	---	---	---	8	---	---
New Mexico	18	2	6	---	1	1	---
North Dakota	7	1	---	---	---	---	---
Ohio	179	28	---	---	178	30	23
Oklahoma	4	---	---	---	83	---	---
Pennsylvania	800	93	14	5	1,024	168	26
Tennessee	15	8	---	---	171	26	5
Utah	87	10	---	---	132	17	---
Virginia	98	26	---	---	188	43	3
Washington	1	---	6	---	97	---	---
West Virginia	1,071	182	---	4	1,797	360	90
Wyoming	30	1	8	---	309	4	---
Total	3,569	485	67	12	5,510	846	200

1/ Includes hand-loaded conveyors and conveyors equipped with duckbills or other self-loading heads.
2/ Includes all haulage conveyors with capacity over 500 feet except main slope conveyors.

TABLE 27. - BITUMINOUS COAL AND LIGNITE MECHANICALLY LOADED UNDERGROUND IN THE UNITED STATES, BY TYPES OF LOADING EQUIPMENT, 1946-47

Type of equipment	1946		1947	
	Net tons	Percent of total	Net tons	Percent of total
Mobile loaders:				
Loading direct into mine cars	132,662,797	54.1	155,352,706	52.1
Loading onto conveyors	8,379,074	3.4	10,025,273	3.4
Loading into rubber-tired trucks	45,932,942	18.7	64,458,027	21.6
Scrapers	916,759	.4	854,113	.3
Pit-car loaders	622,363	.3	352,573	.1
Conveyors equipped with duckbills or other self-loading heads	19,678,478	8.0	21,921,484	7.3
Hand-loaded conveyors	37,148,355	15.1	45,193,105	15.2
Grand total loaded mechanically	245,340,768	100.0	298,157,281	100.0

TABLE 28. - MECHANICAL LOADING UNDERGROUND IN BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES, IN 1947

State	Number of mines				Number of loading devices					Production mechanically loaded (net tons)			Total underground production at mines using mechanical loading devices (net tons)			
	Using loading machines only 1/	Using conveyors only 2/	Using both loading machines and conveyors	Total	Mobile loading machines	Scrapers	Conveyors equipped with duckbills or other self-loading heads	Pit-car loaders	Hand-loaded conveyors 3/	Loaded by machines 1/	Handled by conveyors 2/	Total	Mines using loading machines only 1/	Mines using conveyors only 2/	Mines using both loading machines and conveyors	Total
Alabama	20	17	14	51	135	31	35	—	323	7,282,480	3,306,910	10,589,390	4,885,663	2,986,866	5,751,818	13,624,347
Arkansas	—	19	—	19	—	—	—	—	73	—	895,347	895,347	—	948,318	—	948,318
Colorado	41	18	4	63	28	1	214	1	93	3,274,355	402,370	3,676,725	3,969,480	385,177	296,118	4,650,775
Illinois	75	1	6	82	554	—	27	70	—	44,059,377	343,466	44,402,843	41,327,560	117,594	3,573,130	45,018,284
Indiana	17	—	—	17	142	—	—	—	—	10,246,786	—	10,246,786	10,246,786	—	—	10,246,786
Iowa	3	—	1	4	5	—	11	—	1	222,843	3,522	226,365	225,225	—	7,522	232,747
Kentucky	116	42	24	182	351	1	216	—	493	25,168,853	5,156,903	30,325,756	28,434,652	5,288,691	8,612,689	42,336,032
Maryland	—	4	1	5	3	—	3	—	32	192,666	255,611	448,277	—	386,971	275,498	662,469
Michigan	—	1	—	1	—	—	—	—	1	—	2,803	2,803	—	14,013	—	14,013
Montana (bituminous and lignite)	9	1	—	10	41	—	6	—	2	1,046,095	10,000	1,056,095	1,046,095	47,500	—	1,093,595
New Mexico	5	—	—	5	18	6	1	—	—	1,067,882	—	1,067,882	1,213,832	—	—	1,213,832
North Dakota (lig.)	2	—	—	2	7	—	—	—	—	423,887	—	423,887	432,507	—	—	432,507
Ohio	35	8	2	45	179	—	154	—	24	14,265,963	203,910	14,469,873	15,253,806	194,270	285,102	15,733,178
Oklahoma	—	8	1	9	4	—	—	—	83	130,000	602,686	732,686	—	602,777	172,448	775,225
Pennsylvania	108	80	36	224	800	14	82	—	942	47,453,321	7,934,034	55,387,355	55,678,713	9,309,923	10,576,806	75,565,442
Tennessee	9	10	10	29	15	—	42	—	129	1,210,494	1,638,992	2,849,486	1,235,647	1,678,400	1,184,405	4,098,452
Utah	22	4	3	29	87	—	118	—	14	6,966,048	93,137	7,059,185	6,848,939	84,875	367,698	7,301,512
Virginia	21	11	10	42	98	—	51	—	137	5,599,650	1,746,345	7,345,995	6,308,153	1,878,835	4,190,635	12,377,623
Washington	5	2	2	9	1	6	8	—	89	101,777	421,303	523,080	48,629	46,644	449,481	544,754
West Virginia	199	108	105	412	1,071	—	290	—	1,507	77,530,206	22,219,071	99,749,277	74,777,760	19,401,457	33,675,373	127,854,590
Wyoming	20	1	2	23	30	8	273	—	36	6,368,920	309,268	6,678,188	6,268,832	108,522	317,902	6,695,256
Total: 1947 ..	707	335	221	1,263	3,569	67	1,531	71	3,979	252,611,603	45,545,678	298,157,281	258,202,279	43,480,833	69,736,625	371,419,737
1946 ..	654	313	195	1,162	3,200	75	1,521	93	3,470	207,570,050	37,770,718	245,340,768	221,173,263	38,769,218	54,025,233	313,967,714
Percent change, 1947 from 1946 ..	+ 8.1	+ 7.0	+ 13.3	+ 8.7	+ 11.5	- 10.7	+ 0.7	- 23.7	+ 14.7	+ 21.7	+ 20.6	+ 21.5	+ 16.7	+ 12.2	+ 29.1	+ 18.3

1/ Includes mobile loaders, scrapers, and conveyors equipped with duckbills or other self-loading heads. Some mines in this class use conveyors or shuttle cars with mobile loaders to perform initial phase of transportation.
2/ Includes hand-loaded conveyors and pit-car loaders.
3/ Number of units.

TABLE 29. - COMPARATIVE CHANGES IN UNDERGROUND MECHANICAL LOADING OF BITUMINOUS COAL AND LIGNITE BY PRINCIPAL TYPES OF LOADING DEVICES IN THE UNITED STATES, BY STATES, 1946-47

State	Net tons						Handled by each class (percent)				Underground output mechanically loaded (percent)	
	1946			1947			1946		1947			
	Loaded by machines 1/	Handled by conveyors 2/	Total	Loaded by machines 1/	Handled by conveyors 2/	Total	Loaded by machines 1/	Handled by conveyors 2/	Loaded by machines 1/	Handled by conveyors 2/	1946	1947
Alabama	5,255,066	2,885,063	8,140,129	7,282,480	3,306,910	10,589,390	64.6	35.4	68.8	31.2	56.7	61.9
Arkansas	---	715,818	715,818	---	895,347	895,347	---	100.0	---	100.0	67.0	80.0
Colorado	2,990,267	398,002	3,388,269	3,274,355	402,370	3,676,725	88.3	11.7	89.1	10.9	58.8	60.2
Illinois	41,875,095	477,959	42,353,054	44,059,377	343,466	44,402,843	98.9	1.1	99.2	.8	87.7	88.6
Indiana	8,889,172	25,000	8,914,172	10,246,786	---	10,246,786	99.7	.3	100.0	---	90.3	91.1
Iowa	253,809	1,850	255,659	222,843	3,522	226,365	99.3	.7	98.4	1.6	22.1	24.0
Kentucky	20,086,034	4,283,432	24,369,466	25,168,853	5,156,903	30,325,756	82.4	17.6	83.0	17.0	41.2	41.2
Maryland	27,703	283,643	311,346	192,666	255,611	448,277	8.9	91.1	43.0	57.0	21.5	30.9
Michigan	---	34,411	34,411	---	2,803	2,803	---	100.0	---	100.0	43.0	20.0
Montana (bituminous and lignite)	1,142,015	15,244	1,157,259	1,046,095	10,000	1,056,095	98.7	1.3	99.1	.9	91.2	91.1
New Mexico	809,933	---	809,933	1,067,882	---	1,067,882	100.0	---	100.0	---	63.3	74.0
North Dakota (lignite)	354,379	---	354,379	423,887	---	423,887	100.0	---	100.0	---	83.0	89.8
Ohio	12,356,640	221,585	12,578,225	14,265,963	203,910	14,469,873	98.2	1.8	98.6	1.4	69.5	71.7
Oklahoma	130,000	440,602	570,602	130,000	602,686	732,686	22.8	77.2	17.7	82.3	58.5	65.7
Oregon	---	16,089	16,089	---	---	---	---	100.0	---	---	93.8	---
Pennsylvania	36,369,029	6,467,136	42,836,165	47,453,321	7,934,034	55,387,355	84.9	15.1	85.7	14.3	45.7	50.4
Tennessee	824,988	1,534,400	2,359,388	1,210,494	1,638,992	2,849,486	35.0	65.0	42.5	57.5	43.5	49.6
Utah	5,432,296	98,460	5,530,756	6,966,048	93,137	7,059,185	98.2	1.8	98.7	1.3	92.3	95.0
Virginia	4,295,140	1,638,479	5,933,619	5,599,650	1,746,345	7,345,995	72.4	27.6	76.2	23.8	39.9	38.6
Washington	59,415	413,582	472,997	101,777	421,303	523,080	12.6	87.4	19.5	80.5	52.9	56.8
West Virginia	60,288,895	17,410,975	77,699,870	77,530,206	22,219,071	99,749,277	77.6	22.4	77.7	22.3	60.2	64.7
Wyoming	6,130,174	408,988	6,539,162	6,368,920	309,268	6,678,188	93.7	6.3	95.4	4.6	98.5	98.5
Total	207,570,050	37,770,718	245,340,768	252,611,603	45,545,678	298,157,281	84.6	15.4	84.7	15.3	58.4	60.7

1/ Includes mobile loaders, scrapers, and conveyors equipped with duckbills or other self-loading heads.
2/ Includes hand-loaded conveyors and pit-car loaders.

TABLE 30. - BITUMINOUS COAL AND LIGNITE PRODUCTION BY METHODS OF MINING AND LOADING AND AVERAGE OUTPUT PER MAN PER DAY BY METHODS OF MINING IN THE UNITED STATES, BY STATES, IN 1947

State	Mined by stripping		Mined underground				Total	
	Net tons	Average tons per man per day	Hand-loaded (net tons)	Mechanically loaded (net tons)	Total (net tons)	Average tons per man per day	Net tons	Average tons per man per day
Alabama	1,948,823	9.70	6,510,012	10,589,390	17,099,402	3.56	19,048,225	3.81
Alaska	66,462	10.72	294,758	-	294,758	3.90	361,220	4.42
Arizona	-	-	10,060	-	10,060	2.48	10,060	2.48
Arkansas................	751,128	9.82	224,474	895,347	1,119,821	3.01	1,870,949	4.17
Colorado................	247,273	14.02	2,434,106	3,676,725	6,110,831	4.98	6,358,104	5.11
Georgia	3,988	6.27	3,295	-	3,295	2.22	7,283	3.43
Illinois	17,717,192	17.80	5,739,976	44,402,843	50,142,819	7.80	67,860,011	9.14
Indiana	14,195,187	16.69	1,007,124	10,246,786	11,253,910	7.78	25,449,097	11.08
Iowa	741,596	9.91	716,094	226,365	942,459	3.49	1,684,055	4.88
Kansas................	2,473,438	13.68	271,096	-	271,096	2.02	2,744,534	8.71
Kentucky	10,571,683	19.17	43,343,243	30,325,756	73,668,999	5.52	84,240,682	6.06
Maryland	598,423	10.65	1,004,582	448,277	1,452,859	3.96	2,051,282	4.85
Michigan	-	-	11,210	2,803	14,013	2.08	14,013	2.08
Missouri	3,843,928	16.33	392,499	-	392,499	2.59	4,236,427	10.94
Montana (bituminous).....	2,017,229	71.65	74,254	1,047,738	1,121,992	6.82	3,139,221	16.29
Montana (lignite)	1,021	4.22	29,291	8,357	37,648	5.69	38,669	5.64
New Mexico	-	-	375,328	1,067,882	1,443,210	5.38	1,443,210	5.38
North Dakota (lignite)...	2,287,672	19.30	48,303	423,887	472,190	8.55	2,759,862	15.89
Ohio	17,360,193	16.50	5,718,138	14,469,873	20,188,011	5.80	37,548,204	8.28
Oklahoma	2,306,124	12.11	381,753	732,686	1,114,439	3.79	3,420,563	7.06
Pennsylvania	37,075,145	14.38	54,616,796	55,387,355	110,004,151	4.97	147,079,296	5.95
South Dakota (lignite)...	13,518	5.80	1,100	-	1,100	3.63	14,618	5.55
Tennessee	516,521	11.20	2,892,476	2,849,486	5,741,962	4.46	6,258,483	4.69
Texas (lignite)..........	60,504	16.81	-	-	-	-	60,504	16.81
Utah	-	-	369,514	7,059,185	7,428,699	7.00	7,428,699	7.00
Virginia	1,138,741	16.27	11,686,063	7,345,995	19,032,058	4.78	20,170,799	4.97
Washington	196,853	8.15	397,993	523,080	921,073	3.29	1,117,926	3.68
West Virginia	21,993,542	16.80	54,413,760	99,749,277	154,163,037	5.72	176,156,579	6.23
Wyoming	1,268,827	15.68	104,132	6,678,188	6,782,320	7.24	8,051,147	7.92
Total	139,395,011	15.93	193,071,430	298,157,281	491,228,711	5.49	630,623,722	6.42

MECHANICAL CLEANING

Bituminous coal mechanically cleaned in 1947 amounted to 174,435,937 tons, or 28 percent of the total output.

Mechanical cleaning by wet methods include jigs, concentrating tables, classifiers, launders, dense-media processes and any combinations of these 5 methods.

Pneumatic methods of coal cleaning include air tables, air flow, air sand, and any combination of these 3 methods.

Tables 31, 32, 35, and 36 include mechanical cleaning data on all coal mined in the United States except Pennsylvania anthracite. Tables 33 and 34 are on the same basis but do not include consumer-operated plants. There are no mechanical cleaning plants at lignite mines.

Consumer-operated plants include plants owned by steel companies which receive coal from various mines (but usually from affiliated companies), clean it, and then consume it directly at the plant.

Table 31 compares bituminous coal cleaned in 1944-47 by method of cleaning. Both wet and pneumatic methods increased in 1947 over 1946.

Mechanical cleaning by types of equipment. - The tonnage of bituminous coal cleaned by wet-washing methods was 156,083,452 tons in 1947 - an increase of 28 percent over 1946. The quantity cleaned by pneumatic methods was 18,352,485 tons - an increase of 11 percent.

Table 32 compares the number of cleaning plants and the tons of cleaned coal, by types of equipment, for 1946 and 1947. During 1947, 440 wet-washing and 84 pneumatic cleaning plants were in operation. Sixty-three tipples used both wet and dry methods at the same plant; deducting these duplications gives a net total of 461 plants that cleaned coal in 1947, an increase of 16 plants over 1946.

Mines served by cleaning plants, exclusive of those that ship to washeries operated by steel companies, produced a total of 234,511,541 tons, or 37 percent, of the total bituminous output in 1947. In this same group of mines, 164,310,898 tons were mechanically cleaned; therefore 70 percent of the coal produced at mines with cleaning plants in 1947 was cleaned at the mine. The remainder of the output from these mines (30 percent) presumably represents the larger sizes commonly picked by hand. (See tables 34 and 36.)

Relation between raw coal, clean coal, and refuse. - For every 100 tons of raw coal cleaned during 1947 at the mines, 84 tons of clean merchantable coal, on an average, were obtained, and 16 tons of refuse were discarded. Table 36 shows total production of mines with cleaning plants and results of cleaning operations, by States.

Methods of mining at mines served by cleaning plants. - Underground mechanical loading appears to be closely related to mechanical cleaning. Underground coal loaded mechanically in 1947 totaled 298,157,281 tons, of which 158,507,079 tons (53 percent) passed through tipples equipped with mechanical-cleaning devices. Production of coal from strip mines in 1947 was 139,395,011 tons, of which 42,016,524 tons (30 percent) came from strip mines having mechanical cleaning tipples. Hand-loaded underground coal production in 1947 totaled 193,071,430 tons of which 18 percent passed through tipples equipped with cleaning plants. (See tables 30 and 34.)

TABLE 31. - BITUMINOUS COAL MECHANICALLY CLEANED BY WET AND PNEUMATIC METHODS, IN THE UNITED STATES, IN NET TONS OF CLEAN COAL, 1944-47

Method of cleaning	1944	1945	1946	1947	Change 1947 from 1946 (percent)
By wet methods:					
At mines	128,390,547	121,418,585	115,120,292	145,958,413	+ 26.8
At consumer-operated cleaning plants	10,272,142	9,051,154	6,938,347	10,125,039	+ 45.9
Total wet methods	138,662,689	130,469,739	122,058,639	156,083,452	+ 27.9
By pneumatic methods	20,064,440	17,416,197	16,611,198	18,352,485	+ 10.5
Grand total	158,727,129	147,885,936	138,669,837	174,435,937	+ 25.8

TABLE 32. - BITUMINOUS COAL CLEANED IN THE UNITED STATES, BY TYPES OF EQUIPMENT IN ACTUAL OPERATION, 1946-47

(Coal cleaned and plants operated by consumers at central washeries in Colorado and Pennsylvania are included)

Type of equipment	Plants in operation		Net tons of clean coal		Cleaned by each type (percent of total)	
	1946	1947	1946	1947	1946	1947
Wet methods:						
1. Jigs	226	234	64,702,238	85,931,353	46.7	49.3
2. Concentrating tables	10	9	1,447,200	2,980,368	1.0	1.7
3. Classifiers	68	67	13,883,088	14,647,771	10.0	8.4
4. Launders	18	19	16,020,328	17,902,394	11.6	10.3
5. Dense-Media	59	70	14,172,428	17,702,322	10.2	10.1
6. Jigs and concentrating tables	14	14	3,776,190	4,302,422	2.7	2.5
7. Other combinations of methods 1,2,3,4, & 5	21	27	8,057,167	12,616,822	5.8	7.2
Total wet methods	416	440	122,058,639	156,083,452	88.0	89.5
8. Pneumatic methods	88	84	16,611,198	18,352,485	12.0	10.5
Grand total	1/ 504	1/ 524	138,669,837	174,435,937	100.0	100.0

1/Number of plants using both wet and pneumatic methods was 59 in 1946 and 63 in 1947.

TABLE 33. - TOTAL PRODUCTION OF ALL COAL AT BITUMINOUS MINES IN THE UNITED STATES HAVING CLEANING PLANTS, IN NET TONS, 1946-47

(Does not include any estimate for mines that may ship to consumer-operated plants)

Type of equipment	1946	1947	Change 1947 from 1946 (percent)
Wet methods:			
1. Jigs	98,228,966	123,267,688	+ 25.5
2. Concentrating tables	884,813	945,919	+ 6.9
3. Classifiers	29,727,885	33,176,301	+ 11.6
4. Launders	14,978,052	19,721,354	+ 31.7
5. Dense-Media	29,329,451	34,901,017	+ 19.0
6. Jigs and concentrating tables	4,137,840	4,697,185	+ 13.5
7. Other combinations of methods 1,2,3,4, & 5	12,566,806	17,953,150	+ 42.9
Total wet methods	189,853,813	234,662,614	+ 23.6
8. Pneumatic methods	52,939,443	59,917,199	+ 13.2
Grand total	242,793,256	294,579,813	+ 21.3
Less duplications 1/	42,519,334	60,068,272	+ 41.3
Net total	200,273,922	234,511,541	+ 17.1
United States, total production 2/	533,922,068	630,623,722	+ 18.1
Percent produced at mines having cleaning plants	37.5	37.2	—

1/Mines using both wet and pneumatic methods.

2/For purposes of historical comparison and statistical convenience, the figures include the output of lignite and of anthracite and semianthracite outside of Pennsylvania. There are no mechanical cleaning plants at lignite mines.

TABLE 34. - METHOD OF MINING AT BITUMINOUS-COAL MINES IN THE UNITED STATES SERVED BY CLEANING PLANTS, 1944-47

(Does not include any estimate for mines that may ship to consumer-operated plants)

Method of mining in use	Total net tons produced from mines that move coal to cleaning plants				Change 1947 from 1946 (percent)
	1944	1945	1946	1947	
Mined from strip pits	32,444,227	35,910,050	33,221,819	42,016,524	+26.5
Mechanically loaded underground	137,926,900	129,733,226	125,521,189	158,507,079	+26.3
Hand-loaded underground	62,564,653	48,614,794	41,530,914	33,987,938	-18.2
Total	232,935,780	214,258,070	200,273,922	234,511,541	+17.1

TABLE 35.- BITUMINOUS COAL MECHANICALLY CLEANED BY WET AND PNEUMATIC METHODS IN THE UNITED STATES, BY STATES, 1946-47

(Coal cleaned and plants operated by consumers at central washeries in Colorado and Pennsylvania are included)

State	Plants in operation		Net tons of clean coal		Output mechanically cleaned (percent)	
	1946	1947	1946	1947	1946	1947
Alabama	51	52	11,608,231	13,923,152	71.7	73.1
Alaska	2	1	164,623	171,799	44.9	47.6
Arkansas	3	4	98,177	250,060	6.0	13.4
Colorado	10	8	901,069	1,373,708	15.2	21.6
Illinois	57	53	28,164,779	33,363,568	44.4	49.2
Indiana	19	22	10,669,696	13,865,723	49.2	54.5
Kansas	5	4	1,273,764	1,349,393	51.1	49.2
Kentucky	23	30	8,270,196	12,195,014	12.4	14.5
Maryland	-	2	-	318,498	-	-
Michigan	1	-	7,554	-	9.4	-
Missouri	10	9	2,991,932	3,071,263	80.2	72.5
Montana	2	3	171,882	170,522	4.6	5.4
New Mexico	3	3	395,347	477,873	30.9	33.1
Ohio	11	15	6,467,864	9,366,478	20.0	24.9
Oklahoma	1	2	90,000	385,442	3.4	11.3
Oregon	1	-	14,961	-	87.2	-
Pennsylvania 1/	2/ 61	62	2/ 29,807,425	36,728,026	23.8	25.0
Tennessee	3	3	125,276	188,572	2.2	3.0
Utah	3	3	1,636,201	1,679,577	27.3	22.6
Virginia	18	18	3,401,629	3,375,524	21.9	16.7
Washington	21	19	816,465	954,734	82.4	85.4
West Virginia 3/	140	148	31,592,766	41,227,011	21.9	23.4
Total	4/ 445	5/ 461	138,669,837	174,435,937	26.0	27.7

1/ Includes some coal mined in Pennsylvania and cleaned in Ohio and a small tonnage mined in other States and cleaned at a consumer-operated plant in Pennsylvania.
2/ For purpose of concealment includes plant in Maryland.
3/ Includes some coal mined in West Virginia and cleaned in Ohio and Pennsylvania.
4/ Represents 59 plants using both wet and pneumatic methods of cleaning and 386 plants using only 1 cleaning method.
5/ Represents 63 plants using both wet and pneumatic methods of cleaning and 398 plants using only 1 cleaning method.

TABLE 36. - RESULT OF OPERATIONS AT BITUMINOUS-COAL-CLEANING PLANTS IN THE UNITED STATES, BY STATES, IN NET TONS IN 1947

State	Total raw coal moved to cleaning plants	Coal obtained in cleaning process	Refuse resulting in cleaning process	Ratio of refuse to raw coal (percent) 1/	Total production from mines that moved coal to cleaning plants
Alabama	18,705,128	13,923,152	4,781,976	25.6	14,939,390
Alaska	246,799	171,799	75,000	30.4	171,799
Arkansas	284,507	250,060	34,447	12.1	455,079
Colorado	128,338	115,199	13,139	10.2	616,060
Illinois	39,519,166	33,363,568	6,155,598	15.6	37,252,222
Indiana	16,426,695	13,865,723	2,560,972	15.6	18,409,719
Kansas	1,661,515	1,349,393	312,122	18.8	1,357,393
Kentucky	15,076,545	12,195,014	2,881,531	19.1	16,302,575
Maryland	348,598	318,498	30,100	8.6	485,998
Missouri	3,718,036	3,071,263	646,773	17.4	3,193,952
Montana	178,522	170,522	8,000	4.5	265,735
New Mexico	581,678	477,873	103,805	17.8	1,076,387
Ohio	11,848,324	9,366,478	2,481,846	20.9	13,714,844
Oklahoma	435,703	385,442	50,261	11.5	536,546
Pennsylvania 2/	32,596,065	27,861,496	4,734,569	14.5	40,915,170
Tennessee	203,515	188,572	14,943	7.3	654,502
Utah	1,760,385	1,679,577	80,808	4.6	2,283,364
Virginia	3,690,564	3,375,524	315,040	8.5	9,414,365
Washington	1,209,200	954,734	254,466	21.0	1,015,285
West Virginia 3/	46,723,648	41,227,011	5,496,637	11.8	71,451,156
Total at mines only 4/	195,342,931	164,310,898	31,032,033	15.9	234,511,541
Consumer plants 5/	11,277,037	10,125,039	1,151,998	10.2	---
Grand total	206,619,968	174,435,937	32,184,031	15.6	---

1/ In Alabama (for example) for every 100 tons of raw coal cleaned in 1947, an average of 25.6 tons of refuse was discarded and 74.4 tons of clean marketable coal was obtained.
2/ Includes some coal that was mined in Pennsylvania and cleaned in Ohio.
3/ Includes some coal that was mined in West Virginia and cleaned in Ohio and Pennsylvania.
4/ Includes all mechanical cleaning other than washeries operated by consumer steel companies.
5/ Includes central washeries in Colorado and Pennsylvania operated by consumer steel companies.

DETAILED STATISTICS, BY STATES AND COUNTIES

Detailed production and employment statistics are given in table 37 for each coal-producing county in the United States from which three or more operators submitted reports for 1947. Statistics on counties with less than three reporting producers have been combined with data for other counties in the same State to avoid disclosing individual figures, unless permission to publish has been granted by the operators. Production of mines on the border between two States has been credited to the State from which the coal was extracted rather than to that in which the tipple was situated. If the coal is mined from lands in both States, the tonnage has been apportioned accordingly.

The data in the present report, as in those published for many years by the Bureau of Mines, relate only to mines with an annual output of 1,000 tons or more. That fact should be borne in mind when the statistics in this report are compared with similar data compiled by State mine departments. Differences arise largely from variations in coverage by State reports, some of which include data for all mines ragardless of size, and others only data for mines employing more than a specified minimum number, ranging from 2 to 10 men.

Because of a change in method of reporting, beginning with 1946, statistics of average production per man per day are not precisely comparable with those for other years. The figures since 1946 were based on the average of men working daily while the figures for previous years were based on the average number of men on the rolls per pay period.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface		Total			
							In strip pits	All others				
				ALABAMA								
Bibb	718,892	61,422	15,132	795,446	$6.25	714	13	248	975	261	254,641	3.12
Blount	180,617	199,446	333	380,396	5.31	360	58	93	511	256	130,675	2.91
Cullman	—	40,213	72	40,285	5.05	71	—	15	86	228	19,599	2.06
Jackson	2,753	13,933	134	16,820	5.38	21	—	8	29	230	6,659	2.53
Jefferson	9,368,663	237,966	106,032	9,712,661	5.48	9,271	102	1,726	11,099	252	2,794,637	3.48
Marion	201,965	140,337	2,841	345,143	6.89	458	—	88	546	241	131,651	2.62
St. Clair	822,397	75,651	7,483	905,531	5.42	489	60	141	690	244	168,092	5.39
Shelby	392,515	93,236	2,371	488,122	6.17	599	—	107	706	232	163,719	2.98
Tuscaloosa	710,903	61,866	1,622	774,391	4.85	405	100	148	653	232	151,502	5.11
Walker	4,449,129	560,770	574,322	5,584,221	5.33	3,976	319	823	5,118	231	1,182,224	4.72
Winston	—	5,209	—	5,209	5.38	4	—	1	5	269	1,345	3.87
Total Alabama	16,847,834	1,490,049	710,342	19,048,225	5.48	16,368	652	3,398	20,418	245	5,004,744	3.81
				ALASKA								
Total Alaska	322,306	36,558	2,356	361,220	$7.07	161	25	75	261	313	81,712	4.42
				ARIZONA								
Total Arizona	—	10,060	—	10,060	$4.61	26	—	7	33	123	4,049	2.48
				ARKANSAS								
Franklin	116,887	117	1,257	118,261	$6.42	238	27	42	307	147	45,235	2.61
Johnson	370,883	72,948	755	444,586	6.88	230	57	89	376	194	72,897	6.10
Logan	280,040	5,400	1,831	287,271	8.46	539	—	88	627	171	107,360	2.68
Pope	48,125	—	255	48,380	7.62	67	—	20	87	245	21,315	2.27
Scott	86,430	—	—	86,430	5.58	—	22	8	30	185	5,550	15.57
Sebastian	840,560	44,339	1,122	886,021	6.07	594	236	165	995	197	195,973	4.52
Total Arkansas	1,742,925	122,804	5,220	1,870,949	6.67	1,668	342	412	2,422	185	448,330	4.17

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

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County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface		Total			
							In strip pits	All others				
COLORADO												
Boulder	132,222	190,238	3,738	326,198	$4.65	327	—	52	379	181	68,491	4.76
Delta	79,333	18,599	4,483	102,415	4.40	84	—	35	119	197	23,442	4.37
Elbert	—	995	137	1,132	3.80	2	—	1	3	162	487	2.32
El Paso	66,092	136,453	11,949	214,494	3.95	173	—	38	211	235	49,564	4.33
Fremont	135,821	291,998	1,781	429,600	4.97	326	8	93	427	199	84,946	5.06
Garfield	10,588	41,347	21	51,956	4.58	35	—	8	43	258	11,106	4.68
Gunnison	562,674	31,317	29,119	623,110	4.46	381	—	120	501	211	105,691	5.90
Huerfano	525,074	55,667	4,440	585,181	4.82	561	3	126	690	201	138,768	4.22
Jackson	28,910	13,845	—	42,755	4.26	—	16	3	19	235	4,470	9.56
Jefferson	100,085	19,326	1,931	121,342	4.25	105	—	22	127	231	29,388	4.13
La Plata	28,796	20,137	44	48,977	3.14	45	—	8	53	196	10,395	4.71
Las Animas	1,169,986	70,385	49,211	1,289,582	4.73	1,233	—	230	1,463	228	333,420	3.87
Mesa	82,307	20,633	850	103,790	4.13	69	—	14	83	218	18,073	5.74
Moffat	114,838	24,795	6,861	146,494	4.78	63	—	19	82	190	15,604	9.39
Montrose	—	8,949	—	8,949	3.43	9	—	2	11	182	2,003	4.47
Rio Blanco	—	14,572	51	14,623	4.11	20	—	3	23	207	4,766	3.07
Routt	944,807	38,705	33,311	1,016,823	4.87	623	28	327	978	185	181,248	5.61
Weld	778,341	431,104	21,238	1,230,683	3.95	647	—	126	773	211	162,884	7.56
Total Colorado	4,759,874	1,429,065	169,165	6,358,104	4.53	4,703	55	1,227	5,985	208	1,244,746	5.11
GEORGIA												
Total Georgia	7,119	—	164	7,283	5.40	39	8	10	57	37	2,121	3.43

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Under-ground	Surface		Total			
							In strip pits	All others				
ILLINOIS												
Bureau	564,361	125,016	377	689,754	$3.57	37	54	128	219	238	52,100	13.24
Christian	7,215,850	107,906	51,755	7,375,511	2.45	1,914	—	596	2,510	274	688,749	10.71
Clinton	207,367	105,625	19,975	332,967	3.66	211	—	55	266	248	65,934	5.05
Douglas	50,354	—	—	50,354	3.59	26	—	5	31	251	7,781	6.47
Edgar	—	26,655	1,499	28,154	3.59	46	—	5	51	132	6,732	4.18
Franklin	13,714,642	367,201	361,654	14,443,497	3.38	5,755	—	1,921	7,676	235	1,802,850	8.01
Fulton	6,699,606	262,791	16,111	6,978,508	3.05	136	536	609	1,281	269	344,101	20.28
Gallatin	56,945	24,410	2,100	83,455	3.17	61	—	10	71	277	19,636	4.25
Grundy	1,351,745	315,753	9,491	1,676,989	3.79	—	254	267	521	301	157,074	10.68
Hancock	—	17,200	158	17,358	4.80	—	11	5	16	114	1,831	9.48
Henry	59,180	55,755	1,128	116,063	3.65	48	—	13	61	256	15,619	7.43
Jackson	1,178,555	139,234	9,180	1,326,969	3.16	263	61	131	455	260	118,191	11.23
Jefferson	467,140	42,735	23,690	533,565	3.36	239	—	82	321	221	70,901	7.53
Knox	674,280	111,213	2,903	788,396	2.60	114	57	79	250	224	56,089	14.06
La Salle	37,356	122,671	12,035	172,062	5.00	181	20	40	241	139	33,466	5.14
Livingston	—	6,453	—	6,453	4.87	—	3	—	3	162	486	13.28
Logan	—	52,778	—	52,778	3.80	48	—	6	54	160	8,613	6.13
Macoupin	4,718,524	150,348	168,332	5,037,204	2.93	2,212	—	539	2,751	258	708,839	7.11
Madison	1,102,708	966,234	84,093	2,153,035	3.30	978	—	269	1,247	254	317,062	6.79
Marion	199,457	29,381	8,085	236,923	3.31	110	—	45	155	265	41,075	5.77
Menard	—	27,527	2,147	29,674	4.30	46	—	9	55	242	13,302	2.23
Montgomery	788,970	31,870	56,782	877,622	2.89	241	—	78	319	284	90,596	9.69
Peoria	369,335	230,860	4,355	604,550	3.09	319	—	51	370	237	87,789	6.89
Perry	4,897,710	67,532	56,520	5,021,762	3.07	900	249	671	1,820	249	453,024	11.08
Randolph	2,457,929	109,620	31,221	2,598,770	3.17	625	63	296	984	238	233,991	11.11
St. Clair	1,654,604	1,623,582	74,065	3,352,251	2.82	1,194	105	320	1,619	225	364,777	9.19
Saline	4,181,983	79,218	76,298	4,337,499	3.56	1,927	153	723	2,803	217	606,874	7.15
Sangamon	1,497,775	729,058	30,901	2,257,734	3.11	1,186	—	215	1,401	244	342,247	6.60
Schuyler	85,928	29,022	600	115,550	3.21	6	20	25	51	165	8,390	13.77
Tazewell	—	88,170	4,193	92,363	4.43	89	—	7	96	240	23,001	4.02
Vermilion	405,510	218,958	9,763	634,231	3.01	730	24	104	858	112	95,690	6.63
Warren	—	2,319	20	2,339	3.63	2	—	1	3	326	978	2.39
Washington	282,452	55,953	13,243	351,648	3.56	247	—	69	316	198	62,434	5.63
Will	100,584	141,674	575	242,833	3.61	—	27	24	51	248	12,648	19.20
Williamson	4,895,428	320,057	24,444	5,239,929	3.42	1,654	229	565	2,448	209	511,426	10.25
Woodford	—	1,261	—	1,261	6.22	36	—	11	47	20	940	1.34
Total Illinois	59,916,278	6,786,040	1,157,693	67,860,011	3.15	21,581	1,866	7,974	31,421	236	7,425,236	4/ 9.14

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface		Total			
							In strip pits	All others				
INDIANA												
Clay	1,947,560	122,135	7,717	2,077,412	$3.48	21	381	220	622	232	144,439	14.38
Daviess	34,001	27,121	—	61,122	3.96	34	46	26	106	111	11,771	5.19
Dubois	—	24,789	—	24,789	3.09	14	—	3	17	247	4,205	5.90
Fountain	—	78,215	—	78,215	4.31	—	26	5	31	293	9,083	8.61
Gibson	780,256	149,197	21,689	951,142	3.63	471	—	81	552	211	116,718	8.15
Greene	1,282,682	67,823	7,093	1,357,598	3.37	202	85	87	374	239	89,420	15.18
Knox	3,210,290	451,989	37,464	3,699,743	3.01	1,232	62	435	1,729	267	462,437	8.00
Owen	—	8,741	—	8,741	4.27	—	5	1	6	162	970	9.01
Parke	1,081	94,653	96	95,830	4.55	67	22	16	105	179	18,780	5.10
Perry	—	1,200	—	1,200	3.00	2	—	—	2	200	400	3.00
Pike	3,967,751	62,160	20,704	4,050,615	3.04	5	530	389	924	255	235,313	17.21
Spencer	108,521	113,093	—	221,614	3.48	25	44	30	99	195	19,287	11.49
Sullivan	3,645,876	146,682	10,292	3,802,850	3.27	867	289	378	1,534	235	359,983	10.56
Vermillion	378,680	65,829	5,794	450,303	3.40	81	80	54	215	170	36,518	12.33
Vigo	3,606,197	290,458	418,441	4,315,096	3.25	1,779	114	352	2,245	226	506,390	8.52
Warrick	3,898,494	345,344	8,989	4,252,827	3.15	358	400	423	1,181	239	281,816	15.09
Total Indiana	22,861,389	2,049,429	538,279	25,449,097	3.22	5,158	2,084	2,500	9,742	236	2,297,530	4/ 11.08

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

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County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Under-ground	Surface		Total			
							In strip pits	All others				
				IOWA								
Appanoose	43,363	119,417	2,248	165,028	$4.74	333	—	44	377	181	68,058	2.42
Boone	39,821	19,336	1,425	60,582	4.98	66	—	10	76	196	14,891	4.07
Davis	772	7,718	—	8,490	3.92	17	—	3	20	94	1,887	4.50
Guthrie	—	3,190	30	3,220	5.87	12	—	2	14	117	1,638	1.97
Jasper	153	29,134	80	29,367	4.12	50	—	10	60	243	14,560	2.02
Lucas	23,187	15,072	—	38,259	4.73	113	—	13	126	86	10,804	3.54
Mahaska	186,672	146,761	847	334,280	3.35	28	98	47	173	260	45,022	7.42
Marion	310,097	243,819	493	554,409	3.41	273	75	78	426	185	79,006	7.02
Monroe	45,407	106,747	574	152,728	4.00	194	10	27	231	167	38,519	3.97
Page	—	9,723	—	9,723	6.00	12	—	2	14	240	3,360	2.89
Polk	—	21,774	—	21,774	4.24	60	—	10	70	75	5,250	4.15
Van Buren	—	40,598	10	40,608	3.92	27	16	13	56	185	10,381	3.91
Wapello	16,850	62,908	—	79,758	3.09	29	20	21	70	142	9,947	8.02
Warren	—	8,969	—	8,969	3.91	10	—	2	12	227	2,718	3.30
Wayne	—	2,338	10	2,348	4.76	10	—	2	12	105	1,260	1.86
Other counties:												
Dallas and Greene	127,915	45,942	655	174,512	4.40	144	—	31	175	215	37,676	4.63
Total Iowa	794,237	883,446	6,372	1,684,055	3.82	1,378	219	315	1,912	180	344,977	4.88
				KANSAS								
Bourbon	174,290	20,941	174	195,405	3.35	—	43	23	66	210	13,876	14.08
Cherokee	836,568	47,472	9,598	893,638	3.21	49	136	93	278	221	61,549	14.52
Coffey	—	1,150	—	1,150	3.22	—	5	2	7	59	415	2.77
Crawford	1,474,689	81,602	7,538	1,563,829	3.30	245	243	221	709	231	163,949	9.54
Franklin	—	2,532	—	2,532	5.92	5	—	1	6	160	959	2.64
Labette	—	6,364	—	6,364	4.23	—	7	3	10	200	2,004	3.18
Leavenworth	—	—	35,004	35,004	6.00	186	—	45	231	204	47,124	.74
Linn	1,171	9,731	—	10,902	3.98	12	7	4	23	190	4,376	2.49
Osage	—	35,600	110	35,710	5.24	103	13	15	131	160	20,997	1.70
Total Kansas	2,486,718	205,392	52,424	2,744,534	3.34	600	454	407	1,461	216	315,249	5/ 8.71

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface		Total			
							In strip pits	All others				
KENTUCKY												
Eastern Kentucky:												
Bell	2,921,765	427,469	26,807	3,376,041	$5.22	3,192	—	542	3,734	206	770,016	4.38
Boyd	485,862	287,216	9,339	782,417	4.17	326	99	73	498	237	118,251	6.62
Breathitt	69,458	181,933	—	251,391	4.66	222	—	55	277	164	45,545	5.52
Carter	240,736	341,378	514	582,628	4.50	406	49	92	547	233	127,405	4.57
Clay	368,600	116,170	75	484,845	4.94	674	11	111	796	221	175,760	2.76
Clinton	—	2,300	—	2,300	4.23	7	—	1	8	90	720	3.19
Elliott	—	47,804	—	47,804	3.72	45	4	9	58	233	13,493	3.54
Floyd	6,974,236	897,261	15,128	7,886,625	5.10	5,671	—	1,007	6,678	226	1,507,810	5.23
Greenup	—	110,192	—	110,192	3.98	115	—	19	134	220	29,433	3.74
Harlan	11,700,343	238,130	115,655	12,054,128	5.08	10,540	—	1,772	12,312	205	2,525,580	4.77
Jackson	—	126,372	2,717	129,089	4.49	144	—	32	176	233	40,996	3.15
Johnson	658,126	863,958	5,660	1,527,744	5.28	1,223	—	220	1,443	211	304,002	5.03
Knott	1,224,544	113,706	2,621	1,340,871	4.70	842	8	171	1,021	205	208,897	6.42
Knox	545,775	341,125	3,455	890,355	4.95	676	23	146	845	203	171,706	5.19
Laurel	464,801	352,855	3,531	821,187	4.45	347	78	91	516	257	132,559	6.19
Lawrence	7,358	83,461	—	90,819	3.90	99	—	17	116	232	26,944	3.37
Lee	36,142	32,707	—	68,849	3.87	84	—	11	95	227	21,588	3.19
Leslie	605,770	156,646	—	762,416	5.04	490	16	89	595	201	119,749	6.37
Letcher	6,790,933	1,262,817	55,992	8,109,742	5.00	5,203	185	1,084	6,472	208	1,344,354	6.03
Lewis	—	6,452	—	6,452	4.69	10	—	2	12	100	1,200	5.38
Magoffin	287,184	403,803	—	690,987	4.33	522	5	89	616	192	118,332	5.84
Martin	403,409	47,479	—	450,888	4.34	250	—	57	307	225	69,193	6.52
McCreary	1,076,307	49,740	23,695	1,149,742	4.95	888	4	125	1,017	234	237,664	4.84
Menifee	—	30,753	—	30,753	4.20	34	—	7	41	259	10,639	2.89
Montgomery	—	7,667	—	7,667	4.69	6	—	1	7	269	1,883	4.07
Morgan	—	123,367	—	123,367	4.67	114	—	23	137	234	32,110	3.84
Perry	6,289,162	239,983	95,728	6,624,873	4.80	4,840	40	919	5,799	201	1,163,730	5.69
Pike	11,101,919	1,131,824	206,226	12,439,969	4.56	7,870	21	1,719	9,610	237	2,273,045	5.47
Pulaski	133,070	174,835	—	307,905	4.18	161	7	30	198	272	53,860	5.72
Rockcastle	164,242	40,740	—	204,982	3.87	106	4	20	130	274	35,560	5.76
Wayne	300	1,900	—	2,200	3.62	8	—	2	10	161	1,608	1.37
Whitney	511,827	151,235	200	663,262	4.81	462	30	101	593	234	138,689	4.78
Wolf	—	35,810	—	35,810	4.69	30	—	8	38	188	7,148	5.01
Total Eastern Kentucky	53,061,869	8,429,088	567,343	62,058,300	4.88	45,607	584	8,645	54,836	216	11,829,469	5.25

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface		Total			
							In strip pits	All others				
KENTUCKY - Continued												
Western Kentucky:												
Butler	—	264,304	—	264,304	$3.35	96	25	24	145	228	32,995	8.01
Christian	—	13,900	—	13,900	3.69	9	—	2	11	220	2,420	5.74
Daviess	50,000	408,772	8	458,780	3.49	211	35	58	304	211	64,135	7.15
Edmonson	—	15,800	—	15,800	3.41	13	—	2	15	164	2,460	6.42
Hancock	115,697	94,986	—	210,683	3.20	26	27	16	69	235	16,198	13.01
Henderson	9,000	244,450	—	253,450	2.88	163	—	35	198	207	41,002	6.18
Hopkins	11,039,781	652,807	5,742	11,698,330	3.20	2,324	737	1,198	4,259	214	910,465	12.85
McLean	31,243	120,850	—	152,093	3.63	142	—	23	165	210	34,602	4.40
Muhlenberg	6,179,687	526,688	29,277	6,735,652	2.95	2,496	299	614	3,409	210	716,346	9.40
Ohio	817,054	345,157	1,656	1,163,867	3.30	333	209	184	726	156	113,462	10.26
Union	558,748	98,278	—	657,026	3.07	218	—	54	272	258	70,243	9.35
Webster	432,083	126,414	—	558,497	3.24	270	22	50	342	192	65,693	8.50
Total Western Kentucky	19,233,293	2,912,406	36,683	22,182,382	3.14	6,301	1,354	2,260	9,915	209	2,070,021	4/10.72
Total Kentucky	72,295,162	11,341,494	604,026	84,240,682	4.42	51,908	1,938	10,905	64,751	215	13,899,490	6.06

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface		Total			
							In strip pits	All others				
MARYLAND												
Allegany	616,077	292,789	2,518	911,384	$4.66	762	181	208	1,151	184	211,572	4.31
Garrett	906,768	226,442	6,688	1,139,898	4.91	697	178	187	1,062	199	211,552	5.39
Total Maryland	1,522,845	519,231	9,206	2,051,282	4.80	1,459	359	395	2,213	191	423,124	4.85
MICHIGAN												
Total Michigan	---	12,583	1,430	14,013	$7.68	27	---	6	33	204	6,732	2.08
MISSOURI												
Adair	11,523	98,477	358	110,358	$3.82	145	---	30	175	202	35,403	3.12
Barton	457,758	14,747	893	473,398	3.15	11	123	64	198	182	36,111	13.11
Bates	977,881	13,370	50	991,301	3.10	4	70	99	173	270	46,655	21.25
Boone	---	58,414	---	58,414	3.08	---	15	1	16	257	4,107	14.22
Callaway	---	165,888	---	165,888	3.44	---	52	21	73	236	17,201	9.64
Clay	---	11,302	529	11,831	6.41	87	---	14	101	60	6,055	1.95
Dade	---	8,078	---	8,078	3.83	---	6	3	9	277	2,490	3.24
Daviess	---	7,566	---	7,566	5.81	21	---	4	25	148	3,700	2.04
Harrison	---	9,807	670	10,477	5.83	16	---	3	19	179	3,410	3.07
Henry	640,515	86,741	---	727,256	3.21	---	113	55	168	230	38,636	18.82
Jasper	---	4,988	516	5,504	3.55	---	3	1	4	310	1,240	4.44
Lafayette	---	46,080	482	46,562	5.70	119	---	20	139	159	22,047	2.11
Linn	---	6,956	---	6,956	6.00	32	---	4	36	125	4,500	1.55
Macon	514,139	61,999	229	576,367	3.24	51	45	88	184	275	50,598	11.39
Monroe	---	7,066	153	7,219	4.26	---	11	3	14	220	3,076	2.35
Putnam	---	20,139	---	20,139	4.50	50	---	9	59	143	8,422	2.39
Ralls	---	2,356	---	2,356	5.57	5	---	2	7	186	1,300	1.81
Randolph	443,313	73,487	---	516,800	3.43	126	29	79	234	231	54,018	9.57
Ray	2,714	21,065	80	23,859	6.52	116	---	18	134	117	15,700	1.52
St. Clair	16,040	9,562	---	25,602	3.27	2	10	5	17	249	4,230	6.05
Vernon	406,455	33,600	441	440,496	3.34	2	78	38	118	239	28,258	15.59
Total Missouri	3,470,338	761,688	4,401	4,236,427	3.33	787	555	561	1,903	203	387,157	5/ 10.94

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
						Underground	Surface		Total			
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total			In strip pits	All others				
				MONTANA								
Montana bituminous coal:												
Blaine	—	7,810	—	7,810	$6.37	8	—	1	9	240	2,160	3.62
Carbon	249,862	16,188	768	266,818	4.05	111	17	61	189	191	36,101	7.39
Cascade	38,693	11,804	60	50,557	2.81	52	—	9	61	90	5,505	9.18
Chouteau	—	1,016	10	1,026	6.12	2	—	1	3	195	585	1.75
Fergus	—	1,490	12	1,502	4.61	2	—	—	2	192	384	3.91
Musselshell	793,538	28,517	7,268	829,323	3.52	370	—	176	546	225	122,941	6.75
Rosebud	1,978,615	—	3,570	1,982,185	1.11	—	73	17	90	278	25,011	79.25
Total bituminous	3,060,708	66,825	11,688	3,139,221	2.04	545	90	265	900	214	192,687	4/ 16.29
Montana lignite	—	38,469	200	38,669	2.90	28	2	7	37	185	6,859	5.64
Total Montana	3,060,708	105,294	11,888	3,177,890	2.05	573	92	272	937	213	199,546	4/ 15.93
				NEW MEXICO								
Bernalillo	—	2,000	14	2,014	$5.03	4	—	1	5	133	665	3.03
Colfax	1,195,078	5,782	9,328	1,210,188	4.37	560	—	151	711	264	187,734	6.45
McKinley	106,826	33,075	29,669	169,570	5.53	267	—	68	335	157	52,573	3.23
Rio Arriba	18,730	3,210	75	22,015	3.93	19	—	6	25	219	5,479	4.02
San Juan	—	13,963	—	13,963	3.79	33	—	7	40	250	10,012	1.39
Santa Fe	9.150	10,427	1,703	21,280	5.99	23	—	10	33	256	8,448	2.52
Socorro	—	4,022	158	4,180	5.37	11	—	4	15	237	3,557	1.18
Total New Mexico	1,329,784	72,479	40,947	1,443,210	4.52	917	—	247	1,164	231	268,468	5.38
				NORTH DAKOTA (LIGNITE)								
Total North Dakota	2,228,163	458,278	73,421	2,759,862	$1.92	154	279	247	680	255	173,735	4/ 15.89

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
							Surface					
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	In strip pits	All others	Total			
				OHIO								
Athens	1,938,717	133,279	9,928	2,081,924	$4.22	1,238	122	357	1,717	201	345,698	6.02
Belmont	8,831,729	277,735	21,058	9,130,522	3.65	4,339	232	932	5,503	232	1,277,505	7.15
Carroll	208,827	261,842	5,808	476,477	3.70	195	74	58	327	253	82,822	5.75
Columbiana	143,769	706,577	161	850,507	3.28	149	169	71	389	217	84,409	10.08
Coshocton	318,517	292,990	1,115	612,622	3.48	213	91	72	376	227	85,474	7.17
Gallia	97,424	102,738	—	200,162	4.24	214	3	31	248	227	56,343	3.55
Guernsey	409,440	68,767	1,182	479,389	3.76	196	73	43	312	214	66,862	7.17
Harrison	6,781,207	45,593	21,777	6,848,577	3.32	827	762	566	2,155	248	534,046	12.82
Hocking	465,544	166,097	306	631,947	4.17	463	72	109	644	187	120,472	5.25
Holmes	—	47,293	4,757	52,050	3.00	7	16	15	38	168	6,389	8.15
Jackson	97,734	93,893	30,947	222,574	3.89	159	53	45	257	195	49,998	4.45
Jefferson	5,066,702	1,105,653	24,485	6,196,840	3.43	1,705	498	729	2,932	234	686,063	9.03
Lawrence	133	45,787	8,097	54,017	3.23	46	7	8	61	205	12,505	4.32
Mahoning	3,667	178,263	—	181,930	4.06	7	48	10	65	208	13,501	13.48
Meigs	292,437	56,605	60	349,102	3.93	312	13	64	389	204	79,514	4.39
Morgan	278,482	45,383	—	323,865	3.88	233	32	59	324	179	57,973	5.59
Muskingum	1,310,786	260,860	1,900	1,573,546	2.69	425	131	102	658	208	136,700	11.51
Noble	674,157	66,908	7	741,072	2.36	22	118	82	222	149	33,032	22.43
Perry	3,154,619	340,326	1,583	3,496,528	3.60	1,801	323	418	2,542	174	443,261	7.89
Portage	—	89,768	4,363	94,131	3.19	—	18	6	24	316	7,584	12.41
Stark	81,478	312,821	451	394,750	3.15	17	96	31	144	252	36,228	10.90
Tuscarawas	139,050	1,839,025	58,361	2,036,436	3.22	601	198	179	978	257	251,408	8.10
Vinton	285,241	144,814	25	430,080	4.20	74	114	73	261	223	58,279	7.38
Wayne	7,420	81,736	—	89,156	3.16	—	17	4	21	289	6,069	14.69
Total Ohio	30,587,080	6,764,753	196,371	37,548,204	3.50	13,243	3,280	4,064	20,587	220	4,532,135	4/ 8.28

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface: In strip pits	Surface: All others	Total			
OKLAHOMA												
Coal	198,084	15,618	—	213,702	$5.08	20	44	34	98	240	23,483	9.10
Craig	—	7,839	—	7,839	3.99	—	9	5	14	129	1,802	4.35
Haskell	88,658	1,021	1,853	91,532	3.29	11	22	5	38	233	8,847	10.35
Latimer	326,671	2,563	—	329,234	4.13	24	30	33	87	241	20,939	15.72
Le Flore	444,369	51,520	75	495,964	5.55	377	86	147	610	133	81,182	6.11
Muskogee	202,445	1,485	—	203,930	3.78	—	53	15	68	321	21,844	9.34
Okmulgee	1,160,151	3,988	483	1,164,622	4.39	594	101	141	836	234	195,959	5.94
Pittsburg	154,945	10,644	559	166,148	5.75	207	—	46	253	228	57,729	2.88
Rogers	564,267	38,331	7,446	610,044	3.75	—	124	69	193	287	55,305	11.03
Tulsa	43,244	4,448	50	47,742	3.54	24	20	16	60	196	11,754	4.06
Wagoner	83,556	6,250	—	89,806	3.05	—	39	36	75	76	5,709	15.73
Total Oklahoma	3,266,390	143,707	10,466	3,420,563	4.41	1,257	528	547	2,332	208	484,553	4/ 7.06

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface: In strip pits	Surface: All others	Total			
PENNSYLVANIA (BITUMINOUS COAL)												
Allegheny	13,690,586	3,260,481	1,609,720	18,560,787	$3.94	8,283	980	1,809	11,072	247	2,731,468	6.80
Armstrong	5,701,610	400,349	13,775	6,115,734	3.93	3,154	472	691	4,317	231	995,371	6.14
Beaver	168,761	356,486	2,691	527,938	3.98	140	116	56	312	221	68,875	7.67
Bedford	947,234	100,161	5,300	1,052,695	4.98	621	160	156	937	223	209,292	5.03
Blair	61,854	142,770	295	204,919	4.03	128	12	25	165	233	38,412	5.33
Bradford	---	5,255	---	5,255	3.97	---	5	1	6	97	582	9.03
Butler	1,884,426	602,466	10,867	2,497,759	3.81	773	406	245	1,424	233	332,159	7.52
Cambria	14,843,800	1,140,535	1,609,577	17,593,912	4.90	13,068	595	2,690	16,353	233	3,806,827	4.62
Cameron	---	4,798	500	5,298	3.56	4	---	1	5	200	1,000	5.30
Centre	1,172,472	216,581	2,609	1,391,662	4.08	671	220	163	1,054	221	233,122	5.97
Clarion	3,045,907	536,921	1,531	3,584,359	3.78	800	614	329	1,743	247	430,525	8.33
Clearfield	7,741,546	752,899	38,641	8,533,086	4.25	3,062	1,803	1,111	5,976	216	1,291,265	6.61
Clinton	144,453	387,502	---	531,955	3.32	75	125	42	242	215	52,120	10.21
Elk	439,616	546,184	1,165	986,965	3.88	351	256	119	726	194	140,827	7.01
Fayette	12,685,894	2,194,946	3,759,122	18,639,962	4.19	9,980	745	1,584	12,309	249	3,064,182	6.08
Forest	---	2,373	---	2,373	4.22	4	---	2	6	300	1,800	1.32
Fulton	130,529	5,000	---	135,529	3.99	7	19	8	34	207	7,044	19.24
Greene	12,841,032	119,262	48,624	13,008,918	4.11	7,006	141	1,357	8,504	266	2,262,989	5.75
Huntingdon	433,093	165,204	3,057	601,354	4.94	428	116	82	626	234	146,360	4.11
Indiana	8,275,438	399,004	658,510	9,332,952	4.33	5,020	607	1,174	6,801	226	1,536,096	6.08
Jefferson	2,613,640	260,255	52,751	2,926,646	3.98	1,261	451	325	2,037	225	458,167	6.39
Lawrence	---	169,872	15	169,887	3.28	24	41	17	82	214	17,541	9.69
Lycoming	---	32,411	150	32,561	3.71	27	5	7	39	224	8,736	3.73
McKean	---	2,344	180	2,524	3.34	2	4	---	6	150	900	2.80
Mercer	74,493	283,978	505	358,976	3.99	84	83	43	210	196	41,063	8.74
Somerset	7,000,245	735,143	38,830	7,774,218	4.51	4,486	628	1,045	6,159	227	1,400,904	5.55
Tioga	96,764	77,056	1,235	175,055	4.71	107	21	26	154	230	35,484	4.93
Venango	84,134	155,110	151	239,395	3.66	19	36	13	68	293	19,922	12.02
Washington	20,309,716	1,394,258	303,712	22,007,686	4.26	11,316	1,118	2,604	15,038	249	3,743,177	5.88
Westmoreland	6,873,719	1,866,604	1,338,613	10,078,936	4.04	5,318	733	1,184	7,235	227	1,644,708	6.13
Total Pennsylvania	121,260,962	16,316,208	9,502,126	147,079,296	4.23	76,219	10,512	16,909	103,640	239	24,720,918	5.95

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface: In strip pits	Surface: All others	Total			
SOUTH DAKOTA (LIGNITE)												
Total South Dakota	420	14,158	40	14,618	$2.44	2	11	2	15	176	2,634	5.55
TENNESSEE												
Anderson	1,422,589	25,925	11,497	1,460,011	$4.51	975	2	185	1,162	217	251,745	5.80
Bledsoe	39,203	—	8	39,211	4.43	13	17	5	35	122	4,286	9.15
Campbell	1,463,594	40,000	15,400	1,518,994	5.40	1,450	32	309	1,791	199	356,070	4.27
Claiborne	996,659	20,884	9,689	1,027,232	4.77	918	—	158	1,076	211	226,991	4.53
Fentress	242,543	32,291	2,343	277,177	4.37	201	—	42	243	236	57,255	4.84
Grundy	452,598	—	9,179	461,777	4.93	420	29	56	505	203	102,292	4.51
Hamilton	22,291	172,906	—	195,197	4.69	52	39	25	116	238	27,596	7.07
Marion	330,607	46,073	3,030	379,710	3.44	406	—	52	458	193	88,544	4.29
Morgan	219,061	5,754	1,250	226,065	5.16	326	7	63	396	237	93,956	2.41
Overton	22,888	6,904	306	30,098	4.10	38	—	7	45	183	8,248	3.65
Rhea	9,500	500	—	10,000	4.00	14	—	2	16	228	3,640	2.75
Scott	337,492	—	944	338,436	4.13	151	18	61	230	218	50,198	6.74
Sequatchie	21,047	15,691	10	36,748	4.23	63	—	6	69	165	11,404	3.22
Van Buren	1,000	—	—	1,000	4.11	2	—	1	3	100	300	3.33
White	1,200	8,365	—	9,565	3.23	12	—	3	15	191	2,859	3.35
Other counties: Cumberland and Putnam ...	153,070	94,192	—	247,262	4.56	204	—	21	225	215	48,426	5.11
Total Tennessee	5,735,342	469,485	53,656	6,258,483	4.73	5,245	144	996	6,385	209	1,333,810	4.69
TEXAS (LIGNITE)												
Total Texas	60,504	—	—	60,504	$.98	—	15	—	15	240	3,600	5/ 16.81

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Underground	Surface: In strip pits	Surface: All others	Total			
UTAH												
Carbon	4,565,866	177,209	145,676	4,888,751	$4.01	2,079	---	766	2,845	250	710,418	6.88
Emery	2,396,233	68,586	16,101	2,480,920	3.80	982	---	325	1,307	258	337,489	7.35
Grand	19,950	2,084	---	22,034	3.93	16	---	4	20	269	5,380	4.10
Iron	---	6,565	---	6,565	3.00	6	---	1	7	273	1,910	3.44
Kane	---	2,854	---	2,854	3.50	3	---	1	4	288	1,152	2.48
Summit	7,695	19,880	---	27,575	2.56	15	---	4	19	265	5,035	5.48
Total Utah	6,989,744	277,178	161,777	7,428,699	3.93	3,101	---	1,101	4,202	253	1,061,384	6/7.00
VIRGINIA												
Buchanan	5,348,352	16,424	32,900	5,397,676	$4.85	3,018	132	482	3,632	250	907,036	5.95
Dickenson	2,573,383	1,710	2,989	2,578,082	5.11	1,487	54	320	1,861	256	475,782	5.42
Lee	702,812	58,352	9,040	770,204	4.89	765	---	95	860	227	195,061	3.95
Montgomery	146,325	10,477	2,502	159,304	4.61	173	---	45	218	211	46,072	3.46
Russell	1,934,955	65,854	1,097	2,001,906	5.01	897	51	224	1,172	265	310,471	6.45
Scott	73,439	10,750	1,861	86,050	4.14	85	---	14	99	260	25,720	3.35
Tazewell	4,286,396	52,176	42,148	4,380,720	4.94	3,473	14	650	4,137	273	1,129,835	3.88
Wise	4,358,120	44,948	393,789	4,796,857	4.49	3,511	75	567	4,153	232	964,908	4.97
Total Virginia	19,423,782	260,691	486,326	20,170,799	4.83	13,409	326	2,397	16,132	251	4,054,885	4.97
WASHINGTON												
King	185,376	151,420	1,162	337,958	$5.88	259	44	115	418	216	90,379	3.74
Kittitas	460,331	22,850	19,089	502,270	6.12	382	33	166	581	257	149,339	3.36
Lewis	11,538	33,554	213	45,305	4.65	33	---	9	42	203	8,511	5.32
Pierce	14,175	5,235	58	19,468	6.46	19	---	6	25	212	5,298	3.67
Thurston	44,246	12,230	449	56,925	3.95	29	20	13	62	172	10,680	5.33
Whatcom	135,395	16,709	3,896	156,000	6.85	118	---	33	151	263	39,760	3.92
Total Washington	851,061	241,998	24,887	1,117,926	5.99	840	97	342	1,279	238	303,967	3.68

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Under-ground	Surface		Total			
							In strip pits	All others				
WEST VIRGINIA												
Barbour	3,752,324	483,666	2,861	4,238,851	$3.85	1,393	491	775	2,659	166	440,708	9.62
Boone	6,361,579	5,606	26,446	6,393,631	4.64	3,366	37	867	4,270	258	1,102,626	5.80
Braxton	3,800	55,192	—	58,992	3.90	7	24	13	44	97	4,282	13.78
Brooke	953,806	400,885	965,282	2,319,973	3.45	697	271	185	1,153	238	274,469	8.45
Clay	872,722	39,419	35,686	947,827	4.50	645	—	225	870	186	161,827	5.86
Fayette	14,632,177	126,345	645,504	15,404,026	4.96	9,106	566	1,914	11,586	265	3,068,543	5.02
Gilmer	72,069	—	—	72,069	3.05	17	35	17	69	109	7,510	9.60
Grant	60,155	9,713	—	69,868	3.82	29	67	17	113	97	10,931	6.39
Greenbrier	3,221,162	35,206	31,893	3,288,261	5.43	1,652	233	366	2,251	255	572,929	5.74
Hancock	28,091	85,389	4,937	118,417	3.55	3	38	11	52	182	9,483	12.49
Harrison	14,217,981	873,962	6,650	15,098,593	3.50	3,342	1,676	1,496	6,514	180	1,174,796	12.85
Kanawha	9,937,005	314,091	52,722	10,303,818	4.51	6,216	69	1,092	7,377	258	1,906,233	5.41
Lewis	212,576	34,295	1,500	248,371	3.71	21	44	11	76	270	20,520	12.10
Lincoln	21,168	—	—	21,168	4.60	27	—	4	31	152	4,702	4.50
Logan	23,800,481	40,963	186,855	24,028,299	4.54	10,160	58	2,782	13,000	271	3,520,116	6.83
Marion	8,402,214	275,487	528,418	9,206,119	3.71	4,273	141	1,008	5,422	219	1,185,578	7.77
Marshall	608,804	74,922	189,133	872,859	3.97	624	16	98	738	247	182,014	4.80
Mason	145,409	57,155	473	203,037	4.23	203	—	48	251	166	41,589	4.88
McDowell	24,021,141	86,455	350,010	24,457,606	4.85	14,099	42	3,438	17,579	265	4,657,551	5.25
Mercer	2,994,190	17,840	34,589	3,046,619	5.26	2,050	—	508	2,558	277	709,190	4.30
Mineral	171,593	4,310	101	176,004	4.92	87	53	36	176	148	26,111	6.74
Mingo	6,770,779	33,843	41,037	6,845,659	4.82	3,599	223	932	4,754	242	1,151,475	5.95
Monongalia	11,699,954	683,821	12,035	12,395,810	3.71	4,806	253	1,086	6,145	222	1,365,264	9.08
Nicholas	2,308,735	218,713	9,539	2,536,987	5.33	1,359	170	284	1,813	218	394,789	6.43
Ohio	1,511,626	157,116	15,027	1,683,769	3.94	1,212	—	198	1,410	246	346,189	4.86
Pocahontas	—	13,953	—	13,953	5.55	—	6	3	9	120	1,080	12.92
Preston	2,495,664	349,731	345,015	3,190,410	4.35	1,875	163	498	2,536	258	655,369	4.87
Putnam	38,372	—	—	38,372	4.46	—	14	6	20	109	2,180	17.60
Raleigh	14,975,777	51,196	157,683	15,184,656	5.01	9,423	251	2,071	11,745	263	3,089,187	4.92
Randolph	1,786,596	198,477	9,375	1,994,448	4.26	1,048	218	306	1,572	192	301,676	6.61
Taylor	1,194,859	84,726	57	1,279,642	3.69	282	238	127	647	164	105,919	12.08
Tucker	1,061,134	3,246	1,732	1,066,112	4.76	309	185	103	597	209	124,544	8.56
Upshur	665,707	92,256	4,273	762,236	3.54	411	95	119	625	156	97,263	7.84
Wayne	376,949	11,174	—	388,123	4.06	288	—	68	356	200	71,246	5.45
Webster	1,786,455	17,940	13,608	1,818,003	4.79	1,198	44	309	1,551	205	318,272	5.71
Wyoming	6,323,941	11,054	48,996	6,383,991	4.89	3,577	24	764	4,365	263	1,149,354	5.55
Total West Virginia	167,486,995	4,948,147	3,721,437	176,156,579	4.48	87,404	5,745	21,785	114,934	246	28,255,515	6.23

See footnotes at end of table.

TABLE 37. - PRODUCTION, VALUE, EMPLOYMENT, DAYS ACTIVE, MAN-DAYS, AND OUTPUT PER MAN PER DAY AT BITUMINOUS-COAL AND LIGNITE MINES IN THE UNITED STATES, BY STATES AND COUNTIES, IN 1947 - Continued

(Exclusive of mines producing less than 1,000 tons)

County	Production (net tons)				Average value per ton 3/	Average number of employees				Average number of days mines were active	Number of man-days worked	Average tons per man per day
							Surface					
	Shipped by rail or water 1/	Shipped by truck	Used at mine 2/	Total		Under-ground	In strip pits	All others	Total			
					WYOMING							
Carbon	1,197,645	8,638	30,951	1,237,234	$3.43	255	65	138	458	255	116,916	10.58
Converse	—	12,448	—	12,448	3.09	2	5	1	8	262	2,094	5.94
Fremont	—	8,457	96	8,553	4.30	11	—	5	16	225	3,603	2.37
Hot Springs	49,880	19,560	62	69,502	5.38	74	—	31	105	149	15,617	4.45
Lincoln	410,149	8,909	610	419,668	3.70	217	—	50	267	218	58,294	7.20
Sheridan	1,142,464	35,181	2,561	1,180,206	2.45	198	112	121	431	211	90,823	12.99
Sweetwater	4,804,393	14,319	88,933	4,907,645	3.61	2,380	—	550	2,930	244	714,657	6.87
Other counties: Campbell, Johnson, and Uinta	171,920	31,535	12,436	215,891	1.37	5	15	33	53	284	15,073	14.32
Total Wyoming	7,776,451	139,047	135,649	8,051,147	3.37	3,142	197	929	4,268	238	1,017,077	4/ 7.92
				UNITED STATES								
Total United States	557,084,411	55,859,262	17,680,049	630,623,722	$4.16	311,369	29,783	78,030	419,182	234	98,297,424	6.42

1/ Includes coal loaded at mine directly into railroad cars or river barges, hauled by truck to railroad siding for shipment by rail, and hauled by truck to waterway for shipment by water.

2/ Includes coal used by mine employees, taken by locomotive tenders at tipple, used at mine for power and heat, coal transported from mine to point of use by conveyor or tram, coal made into beehive coke at mine and all other uses at mine.

3/ Value received or charged for coal, f.o.b. mine, including selling cost. (Includes a value for coal not sold but used by producer, such as mine fuel and coal coked [not coke] as estimated by producer at average prices that might have been received if such coal had been sold commercially.)

4/ Output obtained chiefly from strip pits and by use of mechanical loading devices in which type of operation production per man per day is large.

5/ Output obtained chiefly from strip pits in which the production per man per day is large.

6/ Output obtained chiefly by use of mechanical loading devices in which type of operation production per man per day is large.

STATISTICAL SUMMARY OF LIGNITE IN 1947 [1]

According to reports received by the Bureau of Mines, United States Department of the Interior, the production of lignite in 1947 totaled 2,873,653 net tons; an increase of 7.7 percent over the 2,667,619 tons produced in 1946. These figures do not include tonnage from small mines producing less than 1,000 tons. The average value per ton in 1947 was $1.92, compared with $1.68 per ton in 1946. The number of employees in 1947 totaled 747, a slight decrease from the 752 men employed in 1946. The output per man per day based upon calculated man-days was 15.38 tons. The industry worked an average of 250 days in 1947 compared with 236 in the previous year. North Dakota produced 96 percent of the total United States output of lignite; Montana, South Dakota, and Texas together produced the remaining 4 percent.

Strip-pit operations were the source of 82 percent of the total production of lignite in 1947. Of the 2,362,715 tons of lignite produced by this method of mining, 97 percent came from pits in North Dakota. The output from stripping operations in Montana, South Dakota, and Texas amounted to only 75,043 tons.

For 1947 the Bureau of Mines received reports from 59 mines producing 1,000 tons or more annually. Seven mines produced 81 percent of the total lignite mined; four mines accounted for 9 percent; and 48 mines, 10 percent.

According to the Federal Power Commission 975,566 tons of lignite were consumed in generating electric energy in 1947; this amounts to 34 percent of the total lignite mined in the United States in that year. The consumption in the West North Central States was 951,821 tons, the West South Central States and the Mountain States consumed 2,466 and 21,279 tons, respectively.

All data are submitted on a voluntary basis by producers of lignite and the Bureau of Mines wishes to thank them for their cooperation in supplying the data without which this report would not have been possible.

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[1] Compiled by J. A. Corgan and M. I. Cooke.

Table 38.--Summary of production, value, men employed, days operated, man-days of labor, and output per man per day at lignite mines in the United States in 1947, by States 1/

	Montana 2/	North Dakota	South Dakota	Texas	Total
Production (net tons):					
Loaded at mines for shipment	....	2,228,163	420	60,504	2,289,087
Commercial sales by truck or wagon	38,469	458,278	14,158	......	510,905
Used by employees, taken by locomotives at tipple, and other uses	180	3/56,120	40	......	56,340
Used at mine for power and heat	20	17,301	......	......	17,321
Total production: 1947	38,669	2,759,862	14,618	60,504	2,873,653
1946	40,013	2,554,682	16,946	55,978	2,667,619
Value:					
Totals: 1947	$112,198	$5,312,084	$35,727	$59,293	$5,519,302
1946	$105,331	$4,301,603	$36,362	$46,454	$4,489,750
Average per ton: 1947	$2.90	$1.92	$2.44	$0.98	$1.92
1946	$2.63	$1.68	$2.15	$0.83	$1.68
Number of employees:					
Underground	28	154	2	......	184
Surface (including strip pits)	9	526	13	15	563
Total employees: 1947	37	680	15	15	747
1946	39	674	14	25	752
Average number of days mines operated:					
1947	185	255	176	240	250
1946	175	241	169	248	236
Man-days of labor: 1947	6,859	173,735	2,634	3,600	186,828
Average tons per man per day: 1947	5.64	15.89	5.55	16.81	15.38

1/ Exclusive of small mines producing less than 1,000 tons.
2/ Including output from Custer, Dawson, McCone, Richland, Roosevelt, and Sheridan Counties.
3/ Includes some lignite made into briquets.

Table 39.--Summary of stripping operations that produced lignite in the United States in 1947, by States

	Montana	North Dakota	South Dakota	Texas	Total
Number of strip pits 1/	1	30	3	1	35
Number of shovels, dragline excavators, and coal-loading machines 2/	.....	46	3	2	51
Coal produced by stripping	1,021	2,287,672	13,518	60,504	2,362,715
Total value at mines	$2,961	$4,405,241	$33,127	$59,293	$4,500,622
Average value per ton	$2.90	$1.93	$2.45	$0.98	$1.90
Number of employees:					
In strip pits	2	279	11	15	307
All others	.....	197	1	......	198
Total	2	476	12	15	505
Average number of days mines operated	121	249	194	240	247
Man-days of labor	242	118,536	2,331	3,600	124,709
Average tons per man per day	4.22	19.30	5.80	16.81	18.95

1/ Includes some pits in which stripping is done by hand.
2/ In some cases the same equipment was used for stripping or excavating and for loading coal; this duplication has been eliminated. In some cases coal was excavated by machine and loaded by hand.

Table 40.--Production, value, men employed, days operated, man-days of labor, and output per man per day at lignite mines in the United States in 1947, by States and counties

County	Total production (net tons)	Value		Total number of employees	Man-days of labor	Average number of days mine operated	Average tons per man per day
		Total	Average per ton				
MONTANA							
Custer	13,204	$40,659	$3.08	11	1,880	171	7.02
Dawson	2,704	7,597	2.81	4	720	180	3.76
McCone	1,021	2,961	2.90	2	242	121	4.22
Richland	8,357	25,232	3.02	5	1,250	250	6.69
Roosevelt	2,460	8,610	3.50	5	950	190	2.59
Sheridan	10,923	27,139	2.48	10	1,817	182	6.01
Total Montana	38,669	112,198	2.90	37	6,859	185	5.64
NORTH DAKOTA							
Adams, Bowman, and Burleigh	77,977	$177,088	$2.27	36	6,158	171	1/12.66
Burke	336,722	667,238	1.98	55	13,988	254	1/24.07
Divide	222,777	481,113	2.16	47	11,645	248	1/19.13
Dunn	5,200	12,750	2.45	3	640	213	8.13
Golden Valley	2,280	5,700	2.50	4	560	140	4.07
Grant	16,996	47,379	2.79	13	1,436	110	1/11.84
Hettinger	16,397	47,187	2.88	8	1,238	155	1/13.24
McLean	216,505	415,484	1.92	79	21,016	266	1/10.30
Mercer	1,162,075	2,054,973	1.77	234	66,830	286	1/17.39
Morton	34,376	80,583	2.34	28	4,978	178	6.91
Mountrail	8,000	17,500	2.19	4	624	156	1/12.82
Oliver	6,000	14,000	2.33	3	690	230	8.70
Stark	87,885	198,413	2.26	41	13,007	317	6.76
Ward	554,512	1,063,309	1.92	110	29,103	265	1/19.05
Williams	12,160	29,367	2.42	15	1,822	121	6.67
Total North Dakota	2,759,862	5,312,084	1.92	680	173,735	255	15.89
SOUTH DAKOTA							
Dewey	10,427	$29,263	$2.81	9	1,740	193	5.99
Perkins	4,191	6,464	1.54	6	894	149	4.69
Total South Dakota	14,618	35,727	2.44	15	2,634	176	5.55
TEXAS							
Milam: Total Texas	60,504	$59,293	$0.98	15	3,600	240	1/16.81

1/ Output is obtained chiefly from strip pits in which the production per man per day is large.

Table 41.--Number and production of lignite mines in the United States, in 1947, classified by size of output

Class	Mines		Production		
			Net tons		Percent of total
	Number	Percent	Total	Average per mine	
1. (100,000 tons and over)	7	11.8	2,338,488	334,070	81.4
2. (50,000 and under 100,000) ...	4	6.8	262,177	65,544	9.1
3. (10,000 and under 50,000)	6	10.2	111,249	18,542	3.9
4. (Under 10,000 tons)	42	71.2	161,739	3,851	5.6
Total	59	100.0	2,873,653	48,706	100.0

Table 42.--Lignite mined by different methods in the United States in 1947, by States, in net tons

	Montana	North Dakota	South Dakota	Texas	Total
From underground workings:					
Shot off the solid	37,098	27,872	1,100	......	66,070
Cut by machines 1/	550	444,318	......	......	444,868
Total underground ..	37,648	472,190	1,100	......	510,938
From strip pits	1,021	2,287,672	13,518	60,504	2,362,715
Grand total production ..	38,669	2,759,862	14,618	60,504	2,873,653

1/ A total of 11 machines was used - 6 "permissible" and 5 other types.

Table 43.--Lignite loaded for shipment in 1947, by individual railroads, as reported by operators, in net tons

Railroads	State	Quantity
Great Northern	North Dakota	514,520
Chicago, Milwaukee, St. Paul & Pacific	(North Dakota (South Dakota	40,798 420
Northern Pacific	North Dakota	1,052,739
Minneapolis, St. Paul & Sault Ste. Marie	North Dakota	620,106
Rockdale, Sandow & Southern	Texas	60,504
Total	....	2,289,087

IMPORTS AND EXPORTS 4/

TABLE 44. - BITUMINOUS COAL 1/ IMPORTED FOR CONSUMPTION IN THE UNITED STATES, 1945-47, BY COUNTRIES AND CUSTOMS DISTRICTS, IN NET TONS

Country	1945	1946	1947
North America:			
Canada	466,565	434,130	288,394
Mexico	1	---	114
South America:			
Colombia	---	---	6
Peru	7	---	---
Europe:			
Netherlands	---	---	130
Poland and Danzig	---	538	1,120
United Kingdom	577	---	349
Oceania:			
Australia	318	---	---
New Zealand	2	---	---
Africa: Union of South Africa	3	12	28
	467,473	434,680	290,141
Customs District			
Alaska	---	2,929	7,372
Chicago	2	---	6
Dakota	491	548	758
Duluth and Superior	327	135	---
Florida	---	---	60
Hawaii	---	---	64
Laredo	---	---	114
Maine and New Hampshire	105,020	133,039	45,418
Michigan	84	44	864
Montana and Idaho	276,055	242,668	213,313
New York	731	550	1,927
Pittsburgh	8	---	---
St. Lawrence	97	925	77
San Francisco	16	---	---
Vermont	786	1,528	2,099
Virginia	151	---	---
Washington	83,643	52,164	18,069
Wisconsin	62	150	---
	467,473	434,680	290,141

1/ Includes slack, culm, and lignite.

TABLE 45. - EXPORTS OF BITUMINOUS COAL TO CANADA AND MEXICO, THE WEST INDIES AND CENTRAL AMERICA, AND "OVERSEAS" DESTINATIONS, 1943-47, IN THOUSANDS OF NET TONS

Year	Canada and Mexico	West Indies and Central America 1/	"Overseas" (all other countries)							Grand total
			Newfoundland, Miquelon, Bermuda, Greenland, and Iceland	South America	Europe	Asia	Africa	Oceania	Total "overseas"	
1943 ...	24,272	462	111	589	294	---	108	---	1,102	25,836
1944 ...	24,369	356	157	580	218	(2)	352	---	1,307	26,032
1945 ...	21,589	295	191	1,080	3,924	(2)	873	4	6,072	27,956
1946 ...	21,882	253	160	1,723	16,065	201	878	37	19,064	41,199
1947 ...	25,849	369	404	2,866	36,642	311	2,057	108	42,388	68,606

1/ Includes Bahamas and Panama.
2/ Less than 1,000 net tons.

TABLE 46. - BITUMINOUS COAL EXPORTED FROM THE UNITED STATES, 1945-47, BY COUNTRIES, IN NET TONS 1/

Country	1945	1946	1947
North America:			
Bermuda	8,234	2,555	14,567
Canada	21,585,606	21,879,705	25,848,117
Central America:			
British Honduras	424	76	30
Costa Rica	26	62	50
El Salvador	70	77	128
Guatemala	190	253	257
Honduras	400	262	302
Nicaragua	3	10	8
Panama:			
Canal Zone	25,667	9,554	34,342
Republic of	12	50	35
Greeland	940	4,110	4,493
Iceland	—	—	57,627
Mexico	2,629	1,688	694
Miquelon and St. Pierre	—	—	4,864
Newfoundland and Labrador	181,663	153,212	321,553
West Indies:			
British:			
Barbados	2,006	1,269	2,574
Jamaica	38,102	65,604	89,339
Leeward and Windward	2,270	—	14,800
Trinidad and Tobago	110,252	68,038	100,797
Other British	48	24	491
Cuba	99,706	99,798	98,277
Curacao (N. W. I.)	971	63	374
Dominican Republic	971	3,175	7,309
French	13,661	5,504	20,448
Haiti	35	—	2
	22,073,886	22,295,089	26,621,478
South America:			
Argentina	313,784	486,809	1,113,734
Bolivia	5,241	28,211	329
Brazil	665,112	1,083,379	1,468,312
Chile	6,359	17,372	163,693
Surinam	2,218	577	2,570
Uruguay	86,878	105,458	117,135
Other South America	927	787	500
	1,080,519	1,722,593	2,866,273
Europe:			
Austria	—	—	122,391
Azores	4,698	1,608	6,966
Belgium and Luxembourg	436,644	887,957	3,363,800
Denmark	199,244	1,059,596	2,377,583
Eire	—	—	1,005,584
Findland	—	250,171	637,271
France	624,378	5,092,481	12,434,486
Germany	—	—	42,630
Gibraltar	144,603	9,330	156,872
Greece	37,351	91,676	34,056
Italy	1,111,939	4,687,950	8,750,900
Netherlands	433,773	1,607,383	2,691,248
Norway	353,610	744,277	738,735
Portugal	344,746	455,024	846,901
Sweden	134,496	860,854	2,074,092
Switzerland	98,787	307,586	683,400
United Kingdom	—	—	675,043
Other Europe	112	18,310	—
	3,924,381	16,074,203	36,641,958
Asia:			
British Malaya	—	58,940	99,519
China	—	88,321	4,234
French Indo-China	—	14,494	2,520
Hong Kong	—	39,696	92,203
Netherlands Indies	—	—	95,417
Palestine and Trans-Jordan	—	—	3,436
Syria	—	—	13,667
Other Asia	26	11	33
	26	201,462	311,029
Africa:			
Algeria	561,830	551,350	1,052,370
Belgian Congo	—	—	14,151
British West Africa	47,220	—	36,425
Canary Islands	12,555	—	51,822
Cape Verde Islands	7,621	25,685	89,354
Egypt	—	85,399	298,135
French West Africa	67,229	40,505	244,643
Libya	—	—	27,083
Madeira Islands	14,123	27,838	21,491
Morocco:			
French	76,347	47,031	92,020
Spanish	15,725	—	114,311
Tunisia	70,245	99,931	14,531
Other Africa	9	5	1,075
	872,904	877,744	2,057,411
Oceania	4,476	37,487	107,553
	27,956,192	41,208,578	68,605,702

1/ Amounts stated do not include fuel or bunker coal loaded on vessels engaged in foreign trade, which aggregated 1,784,956 tons in 1945, 1,380,514 tons in 1946, and 1,689,328 tons in 1947.

TABLE 47.- BITUMINOUS COAL EXPORTED FROM THE UNITED STATES, 1945-47, BY CUSTOMS DISTRICTS, IN NET TONS

(U. S. DEPARTMENT OF COMMERCE)

Customs district	1945	1946	1947
North Atlantic:			
Maine and New Hampshire	12,087	33,495	57,408
Massachusetts	---	1,691	61
New York	36,027	701,602	1,382,037
Philadelphia	1,160,647	2,492,021	2,740,855
Rhode Island	---	73	---
South Atlantic:			
Georgia	---	---	10,708
Maryland	2,269,026	6,450,702	10,871,709
North Carolina	---	4,501	---
South Carolina	294,753	1,369,553	1,814,889
Virginia	1,643,106	4,437,316	20,124,474
Gulf Coast:			
Florida	986,940	1,363,403	2,015,102
Galveston	89,128	633,911	434,150
Mobile	347,207	809,566	1,427,881
New Orleans	19,650	20,129	315,944
Sabine	---	531,302	731,418
Mexican border:			
Arizona	338	264	272
El Paso	277	58	45
Laredo	21	27	27
Pacific Coast:			
Los Angeles	---	334,727	142,522
Oregon	---	138,019	379,239
San Diego	164	92	83
San Francisco	14	15	20
Washington	1,020	92,037	301,035
Northern border:			
Buffalo	1,413,882	1,580,304	1,548,629
Chicago	583,981	1,199,033	1,505,335
Dakota	15,555	30,360	23,392
Duluth and Superior	273,868	300,414	385,036
Michigan	2,297,837	2,369,744	3,046,644
Montana and Idaho	9	48	4,431
Ohio	10,825,722	10,433,093	11,619,905
Rochester	3,155,747	2,899,833	3,829,918
St. Lawrence	2,523,021	2,876,940	3,677,266
Vermont	1,263	2,517	4,106
Wisconsin	468	538	193
Miscellaneous:			
Alaska	78	413	204
Colorado	---	---	3,037
Hawaii	---	70,346	3,282
Indiana	---	---	5
Minnesota	---	5,984	---
Pittsburgh	4,356	3,381	11,210
Puerto Rico	---	4	325
St. Louis	---	12,298	---
	27,956,192	1/ 41,208,578	2/ 68,605,702

1/ Includes 8,824 tons, representing export shipments (except by air) individually valued under $25, data for which are not separately classified by customs districts.
2/ Includes 192,905 tons, representing shipments on vessels operated by the U. S. Army or Navy.

TABLE 48.- SHIPMENTS OF BITUMINOUS COAL TO NONCONTIGUOUS TERRITORIES, 1945-47

(U. S. DEPARTMENT OF COMMERCE)

Territory	1945		1946		1947	
	Net tons	Value	Net tons	Value	Net tons	Value
Alaska:						
Anthracite	36,599	$464,053	7,865	$111,451	6,860	$112,272
Bituminous						
Hawaii	567	17,586	259	7,174	365	10,135
Puerto Rico	8,220	50,204	11,526	73,121	9,148	78,593
Virgin Islands	32,168	218,066	53,771	361,170	44,514	334,149

TABLE 49. - WORLD PRODUCTION OF COAL AND LIGNITE, 1940-47, BY COUNTRIES, IN THOUSANDS OF METRIC TONS 1/

(Compiled by B. B. Mitchell and P. Roberts)

Country 1/	1940	1941	1942	1943	1944	1945	1946	1947
North America:								
Canada:								
Coal	12,638	12,872	13,018	11,591	14,201	13,584	14,776	12,964
Lignite	3,298	3,662	4,096	4,610	1,245	1,391	1,382	1,424
Greenland	6	7	5	7	8	7	8	(2)
Mexico	816	856	914	1,025	904	915	977	1,055
United States:								
Anthracite (Pennsylvania)	46,706	51,136	54,728	55,015	57,789	49,835	54,891	51,882
Bituminous	415,336	463,908	525,948	532,903	559,750	521,582	481,943	569,482
Lignite	2,666	2,518	2,659	2,494	2,317	2,421	2,420	2,607
Sohth America:								
Argentina 3/	(4)	(4)	5	8	9	7	3	14
Brazil:								
Coal	1,047	1,110	1,354	1,537	1,415	1,492	1,274	1,999
Lignite	(2)	2	17	23	16	9	(2)	(2)
Chile	1,639	1,717	1,782	2,032	2,047	1,827	1,740	1,765
Colombia	521	403	415	476	499	5/ 525	3/ 550	5/ 850
Peru	113	117	150	187	173	201	230	5/ 220
Venezuela	5	6	9	11	12	7	4	(2)
Europe:								
Albania: Lignite 5/	20	20	20	10	5	5	(2)	(2)
Austria:								
Coal	228	226	225	214	195	72	108	178
Lignite	3,608	3,537	3,523	3,646	3,674	2,066	2,407	2,836
Belgium	25,539	26,722	25,055	23,737	13,525	15,826	22,779	24,390
Bulgaria:								
Coal	188	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Lignite	2,544	2,784	3,444	3,816	2,892	3,432	3,420	4,011
Czechslovakia:								
Coal	20,820	20,930	22,635	24,500	23,159	11,716	14,167	16,216
Lignite	21,476	21,623	23,316	26,750	26,112	15,356	19,475	22,362
Denmark: Lignite	200	1,000	1,800	2,600	2,200	2,320	2,300	2,800
Eire	118	155	167	186	206	216	216	(2)
France:								
Coal	39,323	41,849	41,869	40,531	25,241	33,372	47,208	45,229
Lignite	1,661	2,008	1,958	1,896	1,336	1,692	2,100	2,094
Germany:								
Coal	240,101	243,607	251,970	158,616	135,336	41,208	65,688	85,758
Lignite	223,946	234,996	244,643	254,604	230,808	107,772	159,876	160,450
Greece: Lignite	250	180	365	370	190	70	125	140
Hungary:								
Coal 6/	1,207	1,301	1,250	1,376	7/ 1,050	710	722	1,060
Lignite 6/	10,306	11,298	11,720	11,296	7/ 8,400	3,580	5,630	7,752
Italy:								
Coal	2,282	2,393	2,522	439	(2)	612	1,178	1,358
Lignite	2,109	2,030	2,306	1,934	(2)	709	1,521	1,851
Netherlands:								
Coal	12,145	13,356	12,330	12,497	8,313	5,097	8,314	10,104
Lignite	199	199	281	383	243	130	499	474
Poland:								
Coal	8/ 77,077	8/ 76,343	8/ 83,972	8/ 91,362	8/ 87,389	27,366	47,288	59,130
Lignite	(2)	(2)	(2)	(2)	(2)	(2)	857	4,600
Portugal:								
Coal	369	435	438	403	426	436	380	377
Lignite	64	84	108	106	127	163	141	108
Rumania:								
Coal	297	264	285	306	202	211	167	163
Lignite	2,384	2,195	2,367	2,604	2,069	1,820	1,784	2,105
Spain:								
Coal	8,862	8,763	9,257	9,591	10,485	10,732	10,759	10,474
Lignite	569	793	1,106	1,112	1,202	1,351	1,336	1,275
Svalbard (Spitsbergen)	565	330	---	---	---	6	92	345
Sweden	498	557	582	557	570	615	488	400
Switzerland:								
Coal	8	72	184	157	71	311	178	18
Lignite	---	8	27	75	74			
U.S.S.R.:								
Coal	148,700	146,800	5/ 90,000	5/ 131,400	5/ 118,000	5/ 146,000	5/ 161,000	5/ 175,000
Lignite	15,900	(2)	(2)	(2)	(2)	(2)	(2)	(2)
United Kingdom:								
Great Britain 9/	227,899	209,656	208,231	202,112	195,839	185,706	194,869	202,948
Northern Ireland:								
Coal	(4)	(4)	3	(4)	(4)	(4)	(2)	(2)
Lignite	(4)	(4)	1	1	2	3	(2)	(2)
Yugoslavia:								
Coal	10/ 3,170	7,310	10/11/ 1,160	(2)	(2)	(2)	(2)	(2)
Lignite								

TABLE 49. - WORLD PRODUCTION OF COAL AND LIGNITE, 1940-47, BY COUNTRIES, IN THOUSANDS OF METRIC TONS 1/ - Continued

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Country 1/	1940	1941	1942	1943	1944	1945	1946	1947
Asia:								
China:								
China (including Manchuria):								
Coal	46,481	58,426	65,267	5/ 62,713	5/ 62,465	5/ 16,200	5/ 15,000	5/ 20,000
Lignite	346	397	419			(2)	(2)	(2)
Formosa (Taiwan)	5/ 2,080	2,885	5/ 2,360	5/ 2,500	5/ 2,500	(2)	5/ 1,200	1,289
India	29,860	29,937	29,906	25,921	26,546	29,635	29,747	12/13/27,350
Indochina, French:								
Coal	2,470	2,308	1,218	996	533	231	262	248
Lignite	30	21	24	25	4	---	---	---
Iran 14/	75	92	90	82	69	100	5/ 150	5/ 150
Japan: 15/								
Coal	16/ 57,309	16/ 55,602	16/ 54,179	16/ 55,539	16/ 49,335	16/ 22,371	19,823	26,331
Lignite	16/298	16/ 408	16/ 1,607	16/ 2,876	16/ 2,304	16/ 1,643	2,356	2,820
Korea (Chosen):								
Coal	3,153	3,519	3,898	4,157	4,530	(2)	17/ 237	17/ 359
Lignite	2,588	2,638	2,958	2,430	2,519	(2)	17/ 25	17/ 38
Malayan Union	794	18/ 523	5/ 249	5/ 497	5/ 416	5/ 206	228	230
Netherlands Indies	2,009	5/ 1,500	872	1,038	753	(2)	73	288
Philippines, Republic of	5/ 61	5/ 60	(2)	(2)	(2)	(2)	48	74
Syria and Lebanon:								
Lignite	2	8	7	1	2	2	(4)	(2)
Turkey:								
Coal	3,019	3,020	2,510	2,071	2,383	2,150	2,312	2,623
Lignite	219	264	409	414	533	571	484	628
U.S.S.R.:								
Coal	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Lignite								
Africa:								
Algeria:								
Coal	55	80	148	117	120	162	215	205
Lignite		3	7	1	1	(2)	(2)	(2)
Belgian Congo	23	30	43	69	49	50	102	109
Madagascar	---	1	2	1	2	3	(2)	(2)
Morocco, French	143	139	119	102	134	179	222	18/ 202
Nigeria	313	(2)	19/ 409	19/ 471	651	679	648	591
Portuguese East Africa	20	17	7	13	16	12	16	(2)
Southern Rhodesia	1,291	1,412	1,561	1,779	1,808	1,669	1,613	1,508
Tunisia: Lignite	23	102	141	41	66	69	95	76
Union of South Africa	17,176	18,337	20,408	20,561	22,987	23,554	23,635	23,818
Oceania:								
Australia:								
New South Wales	9,703	11,955	12,433	11,714	11,280	10,402	11,397	11,873
Queensland	1,306	1,477	1,663	1,727	1,686	1,661	1,593	1,910
South Australia	---	---	2	---	35	42	138	183
Tasmania	84	111	137	148	146	151	161	170
Victoria:								
Coal	272	332	318	292	262	251	194	178
Lignite	4,347	4,639	5,013	5,173	5,097	5,533	5,799	(2)
Western Australia	548	566	591	540	567	552	653	732
New Zealand:								
Coal	1,163	1,199	1,194	1,157	1,085	980	974	2,825
Lignite	1,393	1,483	1,529	1,676	1,766	1,899	1,865	
Total, all grades	1,799,000	1,872,000	1,897,000	1,845,000	1,755,000	1,359,000	1,487,000	1,639,000
Lignite (total of items shown above)	301,000	315,000	327,000	338,000	303,000	168,000	231,000	237,000
Bituminous coal and anthracite (by subtraction)	1,498,000	1,557,000	1,570,000	1,507,000	1,452,000	1,191,000	1,256,000	1,402,000

1/ Coal is also mined in British Borneo, Feroe Islands, Italian East Africa, and Karafuto, but production figures are not available.
2/ Data not available; estimate included in total.
3/ In addition, the following quantities of asphaltite were produced and used as solid fuel in the years: 1940, 9,117; 1941, 16,646; 1942, 56,387; 1943, 105,625; 1944, 98,600; 1945, 126,100 tons; data for later years are not available.
4/ Production of less than 1,000 tons.
5/ Estimate.
6/ Includes Northern Territories and Sub-Carpathia; in addition, beginning in 1941, includes Eastern Hungary and Transylvania; and beginning in 1942 includes Southern Territories. Data represents Trianon Hungary subsequent to October 1944.
7/ January to October, inclusive.
8/ Includes that part of Germany which is under Polish Administration (east of the Oder and Misse Rivers).
9/ Includes the following quantities of opencast coal: 1942, 1,329; 1943, 4,498; 1944, 8,786; 1945, 8,245; 1946, 9,053; 1947, 10,487 thousand tons.
10/ Estimated production of Croatia.
11/ January to June, inclusive.
12/ Excludes production of Pakistan for the period August to December, inclusive.
13/ Data represents 90 percent of total production.
14/ Fiscal year ended March 20 of year stated.
15/ Preliminary and subject to revision.
16/ Fiscal year ended March 31 of the year following that stated.
17/ South Korea only.
18/ January to September, inclusive.
19/ Fiscal year ended March 31 of year stated.

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MINERAL MARKET REPORT
MMS No. 1665

TIN CONSUMED IN THE MANUFACTURE OF TIN PLATE AND TERNEPLATE IN 1947.

Record-breaking production of tin plate and terneplate resulted in an increase of 18 percent in tin consumption for these products in 1947, according to the Bureau of Mines, Department of the Interior. Tin plate output increased 39 percent in 1947, and was 10 percent more than the previous record of 1941. Hot-dipped tin plate production increased 9 percent while electrolytic tin plate output increased 97 percent. Nearly half the output in 1947 was electrolytic tin plate which requires much less tin to produce than tin plate by the hot-dip process. Expanded use of electrolytic tin plate in the manufacture of general line cans absorbed much of the increased output of this type of tin plate. However, about 40 percent of the tin plate for canning food was of the thinner coated electrolytic, specified under container order M-81 for many important products including corn and peas. The food pack for 1947 was below the record established in 1946; but exports of tin plate attained a new high level in 1947, being 61 percent more than 1946, and 3 percent above the previous high of 1942. Tin used for terneplate increased 12 percent, with greater output of short ternes and the tonnage of long ternes virtually unchanged from 1946.

The following summary of tin consumption by concerns producing tin plate and terneplate in 1946 and 1947 is released in advance of a final report now in preparation by the Bureau of Mines for the entire tin-consuming industry:

SUMMARY

	1946 Long Tons	1947 Long Tons
Total tin on hand January 1	10,372	11,380
Net receipts during year	28,723	32,210
Supply available for use	39,095	43,590
Minus tin on hand December 31	11,380	10,752
Total tin processed during year	27,715	32,838
Minus tin content of scrap shipped from plants	778	820
Total tin consumed in manufacturing	26,937	32,018
Deduct plant losses	261	411
Tin content of manufactured products	26,676	31,607
Tin plate	26,127	30,980
Terneplate	446	501
Other products	103	126

Prepared by J. B. Umhau under the supervision of Charles White Merrill, Chief, Metal Economics Branch, Economics and Statistics Division.

RECEIPTS - The tin and terneplate industry acquired tin for its requirements in 1946 and 1947 in the following forms:

	1946 Long tons	1947 Long tons
Virgin pig tin........	28,466	31,793
Tin in terne metal.....	257	417
Total............	28,723	32,210

About 62 percent (96 percent in 1946) of the pig tin was obtained from the Longhorn Smelter, and Straits brand accounted for 20 percent (none in 1946). Prior to 1943 Straits was the predominant brand used.

STOCKS - Tin and terneplate plant stocks decreased 6 percent in 1947, with pig tin inventories down 8 percent. Tin on hand at the end of 1945, 1946 and 1947 was in the following forms (long tons):

Raw material	1945	1946	1947
Virgin pig tin..........	6,315	7,286	6,697
Tin in terne metal......	160	169	134
Tin in plant scrap......	228	263	253
Tin in process..........	3,669	3,662	3,668
Total (long tons).	10,372	11,380	10,752

TIN CONTENT OF SCRAP - In processing 32,838 long tons of tin in 1947, byproducts containing 4,037 tons of tin were produced of which 3,217 tons were recovered and re-used in the tin-plate plants, and 820 tons were shipped away in scrap. In comparison, 27,715 tons were processed in 1946 from which 3,638 tons of tin were recovered; 2,860 tons being re-used at the plants and 778 tons shipped away in scrap.

PRODUCTS MANUFACTURED AT TIN-PLATE AND TERNEPLATE PLANTS - In addition to the tin used in the manufacture of tin plate and terneplate, 126 long tons (103 tons in 1946) were used for all other purposes, such as tinned articles, bronze and brass, and babbitt. Quantities used for tin plate and terneplate are shown in the following tables:

Tin content of tin plate, waste-waste, strips, cobbles, etc., produced in the United States, 1946 and 1947.

Product	Quantity Manufactured short tons		Tin content			
			Total long tons		Pounds per short ton of tin plate	
	1946	1947	1946	1947	1946	1947
Tin plate						
Cokes standard.....	1,716,591	1,872,152	20,770	22,159	27.1	26.5
Electrolytic.......	882,537	1,734,535	4,702	7,981	11.9	10.3
Total tin plate..	2,599,128	3,606,687	25,472	30,140	22.0	18.7
Waste-waste, strips, cobbles (etc.	76,782	124,661	655	840	19.1	15.1
Grand total......	2,675,910	3,731,348	26,127	30,980	21.9	18.6

Tin content of terneplate produced in the United States, 1946 and 1947.

	Quantity manufactured short tons		Tin content (long tons)						Pounds of tin per short ton of terneplate	
			Total		Purchased as					
					Pig tin		Terne Metal			
	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947
Short ternes....	69,861	92,683	178	221 1/	87	1/	91	1/	5.7	5.3
Long ternes.....	142,917	142,818	262	270 1/	118	1/	144	1/	4.1	4.2
Waste-waste.....	2,976	4,798	6	10 1/	3	1/	3	1/	4.7	4.8
Total......	215,754	240,299	446	501 1/	208	1/	238	1/	4.6	4.7

1/ Total includes 71 long tons purchased as pig tin and 430 long tons in terne metal.

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Mineral Market Report
MMS No. 1668

LIME IN 1947

In 1947 sales of lime expanded to a record total of 6,778,979 tons, according to figures submitted by producers to the Bureau of Mines, United States Department of the Interior. This output was 13 percent greater than in 1946 and exceeded the historical record set in 1943 by 3 percent. Of the total sales, 74 percent were in the form of quicklime and 26 percent hydrated. In harmony with the general rise in prices, the average value per ton for quicklime increased from $8.27 in 1946 to $9.04 in 1947 - hydrated advanced from $9.15 to $10.50. Although there was a very good demand for virtually all types of lime in 1947, the trend toward concentration of production in large plants continued. The number of active plants declined from 182 in 1946 to 179 in 1947. In 1925-29 an average of 419 plants produced open-market lime in the United States.

Open-market lime was produced in 33 States and 2 Territories in 1947. The leading States were Ohio, Pennsylvania, and Missouri, in that order, which together contributed about 55 percent of the total.

Lime is consumed in such a great variety of uses that it is generally credited with being one of the most vital of raw materials. As shown in the accompanying tables of lime sales, there were marked increases in the tonnages required in nearly all of the major uses. An exception to the general trend was the decline of 12 percent in sales of agricultural lime. The building boom was in full swing and, as there was a general emphasis on the construction of permanent housing, lime requirements were high.

Refractory materials (dead-burned dolomite) sales increased by 29 percent principally owing to high activity of the steel industry.

Output of hydrated lime increased about 7 percent in 1947. Of the total tonnage of lime marketed in 1947, hydrated material constituted 26 percent, which compares with 28 percent in 1946 and 20 percent in 1944. The total number of plants reporting hydrated lime declined from 120 in 1946 to 116 in 1947 and output came from 32 States and 2 Territories.

Prepared by May G. Downey under the supervision of G. W. Josephson, Chief, Nonmetal Economics Branch, Economics and Statistics Division.

Lime sold by producers in the United States 1946-47, by types and major uses

	1946		1947		
	Short tons	Value 1/	Short tons	Value 1/	Percent of change in tonnage
By types:					
Quicklime	4,344,331	$35,949,118	5,021,156	$45,377,205	+16
Hydrated lime	1,648,369	15,083,399	1,757,823	18,449,182	+7
Total lime 2/	5,992,700	51,032,517	6,778,979	63,826,387	+13
By uses:					
Agricultural:					
Quicklime	113,486	899,677	106,364	913,992	-6
Hydrated lime	271,172	2,251,936	233,999	2,243,846	-14
	384,658	3,151,613	340,363	3,157,838	-12
Building:					
Quicklime	206,055	2,350,760	241,711	2,901,128	+17
Hydrated lime	639,549	6,275,938	766,500	8,651,897	+20
	845,604	8,626,698	1,008,211	11,553,025	+19
Chemical and industrial:					
Quicklime	2,946,807	22,596,974	3,277,878	27,266,726	+11
Hydrated lime	737,648	6,555,525	757,324	7,553,439	+3
	3,684,455	29,152,499	4,035,202	34,820,165	+10
Refractory (dead-burned dolomite)	1,077,983	10,101,707	1,395,203	14,295,359	+29

1/ Selling value, f.o.b. plant, excluding cost of containers.
2/ Includes lime used by producers (captive tonnage) as follows--1946; 328,837 tons, valued at $2,216,551; 1947: 392,223 tons, $2,821,404.

Lime (quick and hydrated) sold by producers in the United States, 1946-47, by States

State or Territory	1946 Active plants	1946 Short tons	1946 Value	1947 Active plants	1947 Short tons	1947 Value
Alabama	7	294,654	$2,164,209	7	345,160	$2,727,464
Arizona	3	50,354	489,091	3	54,562	582,074
California	9	172,623	2,144,712	10	181,296	2,615,599
Georgia	1	2,691	33,251	1	10,141	110,983
Hawaii	1	7,824	172,404	1	9,130	228,370
Illinois	7	280,051	2,365,455	7	299,187	2,736,262
Maryland	9	83,580	692,262	8	71,892	673,241
Massachusetts	4	117,709	1,136,428	4	113,420	1,276,693
Missouri	9	799,742	5,931,485	9	889,090	7,006,426
Ohio	18	1,469,278	12,926,310	18	1,774,847	17,685,220
Pennsylvania	28	972,311	8,272,202	29	1,045,566	9,861,812
Tennessee	6	160,698	1,232,480	6	181,039	1,533,737
Texas	7	121,841	1,053,493	6	134,530	1,274,095
Utah	6	29,057	271,526	5	47,096	366,127
Virginia	13	181,282	1,365,931	14	260,663	2,138,707
West Virginia	8	409,952	3,103,183	7	471,914	4,050,950
Wisconsin	9	74,686	760,432	9	70,233	805,000
Undistributed 1/	37	764,367	6,917,663	35	819,213	8,153,627
	182	5,992,700	51,032,517	179	6,778,979	63,826,387

1/ 1946: Arkansas, Colorado, Conecticut, Florida, Indiana, Louisiana, Maine, Michigan, Minnesota, Montana, Nevada, New Jersey, New York, Oklahoma, Oregon, Puerto Rico, South Dakota, Vermont, and Washington. 1947: Arkansas, Colorado, Connecticut, Florida, Indiana, Maine, Michigan, Minnesota, Montana, Nevada, New Jersey, New York, Oklahoma, Oregon, Puerto Rico, South Dakota, Vermont, and Washington.

Hydrated lime sold by producers in the United States, 1946-47, by uses

Use	1946 Short tons	1946 Value Total	1946 Value Avg.	1947 Short tons	1947 Value Total	1947 Value Avg.
Agricultural	271,172	$2,251,936	$8.30	233,999	$2,243,846	$9.59
Building	639,549	6,275,938	9.81	766,500	8,651,897	11.29
Chemical and industrial:						
Insecticides	72,910	687,638	9.43	69,890	738,956	10.57
Metallurgy	39,706	349,430	8.80	56,365	561,842	9.97
Paper mills	39,852	330,086	8.28	51,176	484,351	9.46
Petroleum	29,349	306,250	10.43	33,584	386,682	11.51
Sewage	33,157	287,798	8.68	45,693	480,566	10.52
Sugar	16,477	242,003	14.69	19,261	328,630	17.06
Tanneries	44,567	372,910	8.37	47,357	455,023	9.61
Water Purification	226,939	2,021,579	8.91	210,796	2,057,599	9.76
Other uses 1/	234,691	1,957,831	8.34	223,202	2,059,790	9.23
	737,648	6,555,525	8.89	757,324	7,553,439	9.97
Total hydrated lime	1,648,369	15,083,399	9.15	1,757,823	18,449,182	10.50

1/ Includes liquid and powder bleach, sand-lime and slag brick, silica brick, coke and gas, food products, glass, paints, and other chemical uses.

Lime (quick and hydrated) sold by producers in the United States, 1946-47, by uses

Use	1946			1947		
	Short tons	Value		Short tons	Value	
		Total	Avg.		Total	Avg.
Agricultural	384,658	$3,151,613	$8.19	340,363	$3,157,838	$9.28
Building:						
Finishing	347,237	3,535,208	10.18	467,527	5,430,925	11.62
Mason's	389,003	3,996,480	10.27	389,515	4,411,907	11.33
Other	109,364	1,095,010	10.01	151,169	1,710,193	11.31
	845,604	8,626,698	10.20	1,008,211	11,553,025	11.46
Chemical and industrial:						
Carbide and cyanamide	377,694	2,806,965	7.43	354,104	2,791,244	7.88
Glassworks	248,693	1,949,215	7.84	244,043	2,086,323	8.55
Insecticides and disinfectants	96,457	888,114	9.21	97,723	989,261	10.12
Metallurgical:						
Steel flux	874,243	6,390,713	7.31	1,130,613	9,021,853	7.98
Ore concentration	205,541	1,585,993	7.72	251,663	2,035,905	8.09
Other	64,160	549,608	8.57	48,269	484,431	10.04
Paper mills	565,839	4,489,033	7.93	645,665	5,717,372	8.86
Sewage	65,514	563,037	8.59	84,870	840,543	9.90
Tanneries	80,182	649,290	8.10	89,029	804,137	9.03
Water purification	431,772	3,565,522	8.26	454,339	4,060,039	8.94
Other uses 1/	674,360	5,715,009	8.47	634,884	5,989,057	9.43
	3,684,455	29,152,499	7.91	4,035,202	34,820,165	8.63
Dead-burned dolomite	1,077,983	10,101,707	9.37	1,395,203	14,295,359	10.25
Total lime 2/	5,992,700	51,032,517	8.52	6,778,979	63,826,387	9.42
Hydrated lime included in above distribution	1,648,369	15,083,399	9.15	1,757,823	18,449,182	10.50

1/ Includes liquid and powder bleach, sand-lime and slag brick, silica brick, chromates and bichromates, coke and gas, food products, magnesia, paints, petroleum, sugar, and other chemical uses.

2/ Includes lime used by producers (captive tonnage) as follows -- 1946: 328,837 tons, valued at $2,216,551; 1947: 392,223 tons, $2,821,404.